County of Loudoun

Department of Planning

MEMORANDUM

DATE: October 26, 2009

TO: Judi Birkitt, Project Manager
Land Use Review

FROM: Joe Gorney, AICP, LEED AP, Senior Planner
Community Planning

SUBJECT: ZMAP 2009-0005, SPEX 2009-0009, & CMPT 2009-0001, 2nd Referral Green Energy Partners/Stonewall (GEP/S) Hybrid Energy Park

EXECUTIVE SUMMARY

The proposed use is not anticipated under County land use policies, however the use may be reasonable given the presence of two interstate natural gas lines, two interstate electrical transmission lines, and proximity to energy-intensive industries, such as technology-related companies. Staff cannot support the application given the outstanding issues related to open space, air quality, water resources, steep and moderately steep slopes, plant and wildlife habitat, historic resources, community impacts, noise impacts, and lighting and signage.

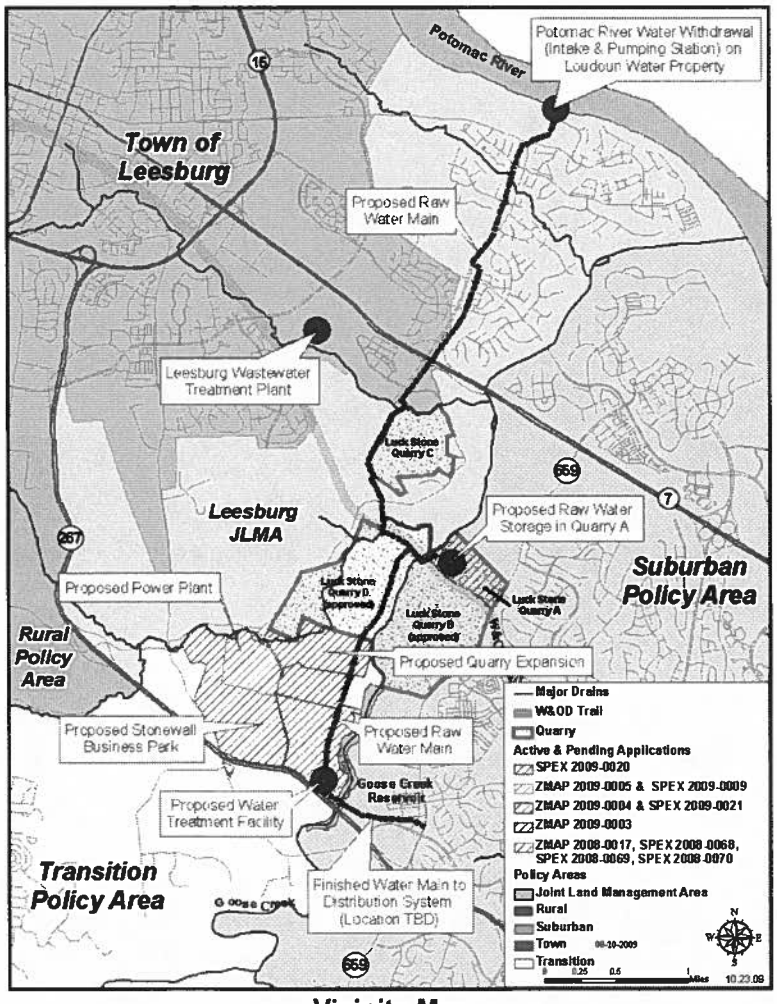
Seventy percent open space is anticipated in the Lower Sycolin subarea as a transition from the Suburban to the Rural Policy Area and as a means to protect on-site resources. The applicant proposes approximately twenty-nine percent open space. The limited amount of open space would alter the complexion of the Lower Sycolin subarea from the lowest-density Transition Policy subarea to an intensively-developed industrial area.

BACKGROUND

Stonewall Creek LLC and Green Energy Partners request a Zoning Map Amendment to rezone four parcels and a portion of one parcel (totaling approximately 90.5 acres) from the TR-10 (Transition Residential-10) zoning district to the MR-HI (Mineral Resource-Heavy Industry) zoning district and a Special Exception and a Commission Permit to allow a utility generating plant and transmission facility. The facility is to have a total electric production potential of 981 Megawatts (MW) to include the following:

Power Source	Power Generation	Percentage
2 natural gas turbines & 1 steam turbine	586 MW	59.7%
2 natural gas simple cycle combustion turbines (peaking power)	394 MW (197 MW each)	40.2%
Solar Array	1 MW	0.1%
Total	**981 MW**	**100.0%**

The property contains two natural gas transmission lines and two overhead electrical transmission lines. The applicant proposes a connection to these utilities and the use of 5 million gallons of wastewater effluent per day from the Leesburg Wastewater Treatment Plant for use in the energy plant. Other alternatives include the use of reservoir water from Loudoun Water or the installation of an air-cooled system. The use of the effluent would necessitate the construction of two wastewater lines and pumping equipment between the utility plant and the Wastewater Treatment Plant. The applicant has not provided information regarding possible alignments for these wastewater lines.



Vicinity Map
(prepared by Loudoun County Department of Planning: October 23, 2009)

The subject property is generally bounded to the north by Sycolin Creek, to the east by vacant land, to the south by the Dulles Greenway (Route 267), and to the west by Sycolin Road (Route 643). The site is currently vacant. Existing and planned developments surrounding the site include Philip Bolen Park to the north, the Dulles Greenway to the south, several residences to the west, and a church to the northwest. The Town of Leesburg's Joint Land Management Area (JLMA) is located on the north side of the subject property. The Goose Creek Reservoir, Goose Creek, and a water intake owned by the City of Fairfax are located approximately 1,500 feet to the east of the proposed plant. Staff notes that applications have been received from Luck Stone

Corporation and Loudoun Water regarding a proposed expansion of quarry operations and the construction of a water treatment facility on the vacant land to the east of the Stonewall site (ZMAP 2009-0003, Luck Stone Quarry and ZMAP 2009-0004, Loudoun Water and Luck Stone Quarry).

The subject property contains significant environmental features, including river and stream corridor resources, wetlands, forest resources, steep and moderately steep slopes, diabase, plant and wildlife habitats, and historic and archaeological resources. A Scenic Creek Valley Buffer extends 150 feet from the channel scar line of Sycolin Creek onto the property. The Quarry Notification Overlay District exists on-site and the property is generally located within the 1-mile buffer of the Ldn 60 noise contour of the Leesburg Executive Airport. The rights-of-way for the underground natural gas transmission lines and overhead electrical transmission lines bisect the site in a north-south direction.

The applicant has responded to First Referral comments. Staff has reviewed responses to Community Planning's First Referral dated July 2, 2009. This referral supplements the First Referral. Below is a discussion of outstanding issues.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

The subject site is governed under the policies outlined in the Revised General Plan, the Revised Countywide Transportation Plan (CTP), and the Toll Road Plan (TRP). Being newer than the TRP, the Revised General Plan supersedes the TRP when there is a policy conflict between the two (*Revised General Plan, Chapter 1, Relationship to Other County Planning Documents, text*). The policies of the Bicycle and Pedestrian Mobility Master Plan (Bike/Ped Plan) also apply.

The subject properties are principally located within the Transition Policy Area with approximately 2.3 acres within the Leesburg Joint Land Management Area (JLMA) (*Revised General Plan, Chapter 7, Planned Land Use Map; Chapter 9, Leesburg & JLMA Map*).

Specifically, the non-residential policies of Chapters 8 (Transition Policy Area) and 11 (Implementation) of the Revised General Plan apply to the proposed development including open spaces, stormwater management, quarry compatibility, streetscape and land use arrangement, building scale and form, noise impacts, and lighting and signage. The infrastructure polices of Chapter 2 (Planning Approach) also apply including energy and communication facilities.

The environmental features on the subject site were assessed applying the Green Infrastructure policies of Chapter 5 (The Green Infrastructure: Environmental, Natural, and Heritage Resources) of the Revised General Plan, including policies pertaining to

river and stream corridor resources, wetlands, forest resources, steep and moderately steep slopes, diabase, plant and wildlife habitats, and historic resources.

OUTSTANDING ISSUES

Open Space

With the exception of approximately 2.3 acres within the Leesburg JLMA, the subject property is located within the Lower Sycolin subarea, which the Plan envisions to have a more rural character with lower densities and greater open space requirements than other Transition Policy Area subareas. The County envisions that development in the Lower Sycolin subarea will maintain a minimum of 70 percent of a site as open space. 70 Percent open space helps provide a visual and spatial transition between the suburban development in the east and rural development to the west and helps protect on-site resources.

In the First Referral, staff recommended that the applicant develop a contiguous open space system comprising 70 percent of the site, encompassing and enhancing significant elements of the Green Infrastructure, and forming the predominant visual feature of the landscape.

In the Response to First Referral Comments, the applicant states that tree preservation areas contiguous with the RSCOD and Stream Valley Buffer areas have been added to the plans. The applicant also states that a 50-foot yard around the perimeter of the property will add to the open space. These spaces amount to approximately 26 acres, or 29 percent, open space. Additionally, the future alignment of Cochran Mill Road, not shown on the Concept Plan, would run through the proposed Tree Save and further diminish the proposed amount of open space.

As stated in the First Referral, development of less than 70 percent open space is not in keeping with County policies. The Lower Sycolin subarea is anticipated to have the lowest density of the six Transition Policy Area subareas. In addition to a significantly lower amount of open space than anticipated by County policies, the quality of open spaces does not adequately fulfill the intent of County policies. Staff recommends that the applicant develop a contiguous open space system comprising 70 percent of the site area, encompassing and enhancing significant elements of the Green Infrastructure, and forming the predominant visual feature of the landscape. Priority should be given to natural areas along Sycolin Creek, drainageways, wetlands, steep slopes, moderately steep slopes, forest resources, stream corridors, and other natural areas to protect drinking water resources, along with historic and archaeological resources. Open spaces should be designed to mitigate views from public rights-of-way and buffer neighboring residential properties. The applicant should consider expanding the

area of the proposed rezoning to increase the amount of open space and help meet County land use policies.

Air Quality

In the First Referral staff recommended that the applicant coordinate with the staff of the Virginia Department of Environmental Quality (DEQ) at the Northern Virginia Regional Office and the Metropolitan Washington Council of Governments (MWCOG) regarding compliance with the requirements of the Clean Air Act Amendments, the State Implementation Plan, and the air permit review process. The applicant has not provided details regarding coordination with these entities.

Although the applicant has included an Air Quality Report with the Response to First Referral Comments, the applicant has not demonstrated that the air modeling protocols were accomplished to the satisfaction of DEQ. The expectation is that the applicant will commit to the protocols as defined by DEQ.

As stated in the First Referral staff recommends that the applicant coordinate with the DEQ staff at the Northern Virginia Regional Office and the MWCOG. The applicant should demonstrate that air modeling protocols were accomplished to the satisfaction of DEQ and should commit to these protocols. Any use should be conditioned on the approval of the applicable State and federal permits.

Water Resources

In the First Referral staff recommended several measures regarding water resources, including the following:

- Annotate the 50-foot Management Buffer along the Sycolin Creek floodplain and limit uses to those specified in County policies;
- Address anticipated impacts to local waterways from the construction of two wastewater lines and pumping facilities between the power plant and the Leesburg Wastewater Treatment Plant, which would supply effluent for plant operation;
- Avoid impacts to wetlands and natural drainages and design the project so that the functionality of these features is preserved. Restore degraded wetlands. Mitigate wetlands impacts; and,
- Demonstrate that the most efficient pollutant removal BMPs will be used, that existing drainage patterns and hydrology to wetlands will be maintained, and that low impact development (LID) techniques such as bioretention and sheet flow to vegetated buffer areas will be implemented. Consider various site measures, such as permeable pavers, porous concrete, cisterns, planted swales, curb cuts, rain gardens, and bioretention filters adjacent to impervious areas. Minimize pipe installation.

The applicant responded as follows:

- Depicted a 50-foot Management Buffer on the Concept Plan and indicated that there would be no impacts to these areas;
- Stated that wastewater lines and pumping facilities between the Leesburg Wastewater Treatment Plant and the power plant would adhere to the State Erosion and Sediment Control Handbook;
- Noted the location of wetlands on the Concept Plan and stated that wetlands permits would be secured from the appropriate State and federal agencies and that restoration and mitigation would be prepared in the event of disturbances; and,
- Stated that drainage patterns will be maintained in areas that are not disturbed. The existing pond will be used for stormwater management.

No information was provided regarding the possible alignment of wastewater lines between the Leesburg Wastewater Treatment Plant and the proposed power plant or the expected impacts of the lines to local waterways and other Green Infrastructure resources. The Concept Plan depicts various impacts to wetlands. The applicant has not committed to LID measures.

Staff notes the placement of liquid ammonia and propane tanks adjacent to the pond, perennial stream, and wetlands. The applicant has not specified the water protection and spill containment measures that would be incorporated into the tank areas or committed to their installation. These waterways are especially significant as they are upstream of Wood Turtle habitat. Spill containment is also appropriate for other nonpoint source pollution sources such as heavy equipment and motor vehicles.

Staff recommends that the applicant commit to the following:

- ***The preservation and management of the 50-foot Management Buffer, including revegetation of degraded areas;***
- ***The annotation or description of the general location of wastewater lines between the Leesburg Wastewater Treatment Plant and the power plant with consideration of Green Infrastructure impacts;***
- ***Avoidance of wetlands;***
- ***The incorporation of LID techniques; and,***
- ***The installation and maintenance of water protection and spill containment devices for tank areas and nonpoint source pollution sources.***

Steep and Moderately Steep Slopes

In the First Referral staff recommended that the applicant revise the application and submit a design that respects the integrity of steep and moderately steep areas. For intrusions into moderately steep areas, staff recommended that the applicant explain what special performance standards or treatments are proposed for those areas. Staff recommended that the applicant avoid disturbance of steep slopes.

In response the applicant states that all very steep slopes have been avoided, that intrusion into moderately steep slopes has been minimized to the extent possible, and that the requirements of the Zoning Ordinance will be followed. The applicant has not defined any performance standards or treatments for moderately steep slopes.

Staff recommends that the applicant commit to the avoidance and protection of steep slopes both during construction and power plant operations. Staff also recommends that the applicant specify and commit to the performance standards and treatments proposed for areas of moderately steep slopes.

Plant and Wildlife Habitats

In the First Referral, staff recommended that the applicant verify the location of the Northern Hardpan Basic Oak-Hickory community. Staff also recommended that the applicant verify whether additional surveys of suitable habitat for rare diabase species were conducted, as recommended by DCR, and coordinate with the VDGIF and the USFWS regarding compliance with protected species legislation. Staff recommended that the Northern Hardpan Basic Oak-Hickory community be preserved, that the applicant identify the community on the plat, and that applicant specify and commit to protection measures. Staff also recommended that the applicant preserve and buffer suitable habitat for the wood turtle, the loggerhead shrike, Henslow's sparrow, and the hairy beardtongue and commit to implementation measures recommended by the applicant's consultant for the wood turtle. Additionally, staff recommended that the applicant incorporate indigenous vegetation into the landscape design and utilize a compact, concentrated development pattern.

In response the applicant states that native species will be used to landscape the property. Additionally the applicant states that no development is proposing in wetlands areas that might impact the wood turtle and that the Gant Lane crossing of Sycolin Creek could use a bottomless culvert or other spanning structure to further protect the wood turtle. It appears that the applicant did not conduct additional surveys of suitable habitat for rare diabase species. The applicant also states that Oak-Hickory Forest resources on the eastern half of the development will be cleared only as necessary to construct the power plant and that resources on the western half of the property will not be in construction areas and will be preserved as depicted on the Concept Plan. The area adjacent to the western stand is to be replanted with native species.

Staff notes that the power plant would eliminate most of the Oak-Hickory Forest community and some areas of the less desirable Virginia Pine. Areas proposed for tree preservation and replanting contain a mixture of various forest types. The proposed alignment of Cochran Mill Road, which is not depicted on the Concept Plan and would cut through the northwest portion of the site, would impact a portion of the proposed

Tree Save area. Open areas not impacted by the proposed power plant area, including the southwest and the north-central portions of the site, are not proposed as Tree Save or Replanting areas and are included as buildable areas.

Staff recommends that the applicant verify whether additional surveys of suitable habitat for rare diabase species were conducted and coordinate with State agencies regarding compliance with protected species legislation. Staff recommends that the applicant preserve and buffer suitable habitat for the wood turtle and commit to implementation measures recommended by the applicant's consultant. Staff also recommends that Tree Save and Replanting areas be expanded to include all portions of the property not impacted by the proposed power plant. Staff recommends that the applicant coordinate with the County Urban Forester regarding appropriate forest management and habitat commitments. Staff recommends that the applicant commit to the best management practices contained within the Forest Management Plan including the transplanting of desirable species and the removal of Virginia pine. Staff further recommends a commitment to a long-term maintenance plan and forestry best management practices, including the removal of invasive species.

Historic Resources

The Concept Plan identifies areas of archaeological and historic resources within the limits of the proposed rezoning. However, the applicant has not committed to the preservation or protection of these resources. Staff's review of these resources will be sent under separate cover.

Community Impacts

In the First Referral staff recommended that all buildings and parking be screened and the development camouflaged behind open space with less intensity adjacent to sensitive uses, such as river and stream corridors and residences. Staff requested additional details to determine whether the proposed use is compatible with the nearby residences, such as plan views, cross-sections, and viewshed perspectives.

In response the applicant has updated the Concept Plan with the general location of utility plant facilities. The applicant calculates a buildable area of approximately 69 acres (approximately 76 percent) of the 91-acre Special Exception Area. Residential uses lie approximately 1,600 to 1,800 feet to the north and west, respectively, of the proposed power plant turbines. The Concept Plan notes that the turbine stacks would be no higher than the adjacent transmission towers (506.5 feet MSL (Mean Sea Level)), which would allow a stack height of approximately 150 feet. The applicant also provided an exhibit sheet featuring typical elevations, photographs, and drawings of similar power plants. The applicant stated that photo-simulations will be provided demonstrating views of the facility from surrounding areas. The applicant also stated

that an application has been filed with the Federal Aviation Administration (FAA) for potential impacts to the Leesburg Executive Airport.

Given the nature and scale of the proposed use, the proximity of residential uses approximately 1,600 to 1,800 feet to the north and west, respectively, the proximity of the Leesburg Executive Airport, the adjacent Phil Bolen Park, and the presence of sensitive environmental features, more information is necessary to discern the impact of the utility plant. Although the general locations of the power plant facilities have been depicted on the plat, no information has been given regarding the disposition of other buildable areas outside of the power plant footprint. Additionally, the applicant has not addressed the planned alignment of Cochran Mill Road, which may traverse a portion of the property.

Staff recommends that the applicant provide further details to determine whether the proposed use is compatible with the nearby residences, the Leesburg Executive Airport, Phil Bolen Park, and on-site resources such as plan views, cross-sections, and 3-dimensional viewshed perspectives. The applicant should provide a copy of the FAA findings and ensure that the power plant does not present a hazard to air navigation. Staff also recommends that the applicant coordinate with the Airport Manager of the Leesburg Executive Airport. The applicant should describe any anticipated compatibility and mitigation measures, such as reforestation, screening, and water protection.

Noise Impacts

In the First Referral, staff recommended that a noise analysis be conducted and provided to the County documenting the predicted cumulative noise impact of all on-site activities on the surrounding residential uses and other areas zoned TR-10 and JLMA-20. Staff requested information regarding the location, number, noise levels, testing, and expected use of facilities on the site.

In response the applicant stated that the project would comply with the Zoning Ordinance. The applicant also stated that major noise-producing equipment would be designed with noise attenuating features as necessary to meet these requirements. The applicant did not commit to a noise study.

Staff notes that the requested noise information would help determine whether a rezoning, special exception, and commission permit for a power plant are appropriate for this portion of the Lower Sycolin subarea. The impact of the power plant on the nearby residences and the adjacent Phil Bolen Park is unclear. Staff notes that a similar combined cycle power plant in Fluvanna County, Virginia was limited to 60 dBA at all property lines and 50 dBA at nearby residences in an effort to ensure compatibility with surrounding uses. Such levels would be reasonable and appropriate for the proposed power plant.

As stated in the First Referral staff recommends that a noise analysis be conducted and provided to the County documenting the predicted cumulative noise impact of all on-site activities on the surrounding residential uses and other areas zoned TR-10 and JLMA-20. Staff requests information regarding noise generation for each of the on-site facilities. Staff recommends that the applicant specify the anticipated noise mitigation measures. Staff recommends that sound walls enclose all turbines and that silencers be installed for all safety valves. Staff recommends that the applicant commit to noise levels no greater than 60 dBA at all property lines and 50 dBA at nearby residences and park property.

Lighting & Signage

In the First Referral staff recommended that the applicant commit to lighting that is fully shielded, provides a glare-free environment, is confined to the site, and is turned off after business hours, unless required for safety or security purposes, and that illumination levels be no greater than necessary for a light's intended purpose. Staff recommended that the applicant provide information regarding the lighting to be used for smokestacks, catwalks, heat recovery units, turbines, and all buildings.

In response the applicant stated that the power plant would comply with the requirements of the Zoning Ordinance and that exterior lighting would be directed downward and inward to the extent feasible.

Lighting and signage are especially important given the project's proximity to residences and Phil Bolen Park. Staff anticipates that the power plant would incorporate lighting to meet safety requirements while still being downward-directed and fully shielded.

As stated in the First Referral, staff notes that directional and interpretive signage within the site could alert people to the presence of sensitive natural features and historical resources. A small sign along Cochran Mill with the power plat name and address would also be appropriate. The applicant did not specifically address directional or interpretive signage other than to say that signage would comply with the Zoning Ordinance.

Staff recommends that the applicant commit to lighting that is fully shielded, provides a glare-free environment, is confined to the site, and is turned off when not needed, unless required for safety or security purposes, and that illumination levels will be no greater than necessary for a light's intended purpose. All lighting should be mounted as low as practicable and preclude light trespass onto adjoining properties, glare to passersby, skyglow, and deterioration of the nighttime environment. Staff recommends that the applicant provide information regarding the lighting to be used for smokestacks, cooling towers, catwalks, heat

recovery units, turbines, and all buildings. Staff also recommends directional and interpretive signage to alert people to the presence of sensitive natural features and historical resources. The plant entrance sign should be limited to a small sign with the plant name and address. Any sign lighting should be downward-directed.

COMMISSION PERMIT

In accordance with the Revised 1993 Zoning Ordinance, a Commission Permit is required when a public utility or public service facility is constructed to determine if the general location, character, and extent of the proposed use are in substantial accord with the Comprehensive Plan.

Staff is unable to recommend approval of a Commission Permit for the proposed use until outstanding issues are resolved, most significantly the amount of open space.

RECOMMENDATION

Staff finds that the proposed use is not anticipated under the land use policies of the County Comprehensive Plan but that the use may be reasonable given the presence of two interstate natural gas lines, two interstate electrical transmission lines, and proximity to energy-intensive industries, such as technology-related companies. However, staff cannot support the application given the outstanding issues related to open space, air quality, water resources, steep and moderately steep slopes, plant and wildlife habitat, historic resources, community impacts, noise impacts, and lighting and signage. Some of these environmental issues could be addressed if seventy percent of the site were retained as open space, as envisioned under County land use policies.

cc: Julie Pastor, AICP, Planning Director
Cynthia Keegan, AICP, Program Manager (via email)

County of Loudoun

Department of Planning

MEMORANDUM

DATE: July 2, 2009

TO: Judi Birkitt, Project Manager
Land Use Review

FROM: Joe Gorney, AICP, Senior Planner JCG
Community Planning

SUBJECT: SPEX 2009-0009 & CMPT 2009-0001, Hybrid Energy Park at Stonewall Secure Business Park

BACKGROUND

Stonewall Creek LLC requests a Special Exception and a Commission Permit to allow a utility generating plant and transmission facility on approximately 87 acres in the PD-GI (Planned Development – General Industry) portion of the proposed Stonewall Secure Business Park (ZMAP 2008-0017, et alia). The primary and peak demand facility is to include up to a 600 megawatt combined cycle gas turbine-wastewater energy plant, up to two 150 megawatt simple cycle peaking power natural gas turbines, and a 1 megawatt solar array, for a total of 901 megawatts.

The two natural gas turbines would combust natural gas to produce electricity as the first cycle of the combined-cycle process. The exhaust heat from the process is then mixed with water to produce steam, which in turn is used to run additional turbines to produce electricity. Excess steam and cooling produced by the plant is also proposed to heat and cool data centers and other buildings within the Stonewall Secure Business Park. The applicant states that the Hybrid Energy Park will also provide Loudoun County with tax revenues and "green" energy to help attract and support an industry cluster of high security governmental and business uses in Loudoun County.

The property contains two natural gas transmission lines and two overhead electrical transmission lines. The applicant proposes a connection to these utilities and the use of 5 million gallons of wastewater effluent per day from the Leesburg Wastewater Treatment Plant for use in the energy plant. The applicant states that the use of the effluent could eliminate two billion gallons of effluent from being discharged into the

Potomac River each year from the Leesburg Wastewater Treatment Plant. The use of the effluent would necessitate the construction of two wastewater lines and pumping equipment between the utility plant and the Wastewater Treatment Plant. The applicant has not provided information regarding possible alignments for these wastewater lines.

The applicant states that the combined cycle turbines, peak generating turbines, and solar array will provide a dedicated and reliable source of power to help satisfy demand for new electrical power generation. The Energy Park is also intended to supply the associated Stonewall Secure Business Park (ZMAP 2008-0017, et alia) with redundant, efficient, and reliable energy for high-tech and data center uses.

The subject property consists of seven parcels or portions of parcels that are generally bounded to the north by Sycolin Creek, to the east by vacant land, to the south by the Dulles Greenway (Route 267) and to the west by Sycolin Road (Route 643) (see Vicinity Map). The site is currently vacant. Existing and planned developments surrounding the site include the Philip Bolen Park to the north, vacant land to the east, the Dulles Greenway to the south, several residences to the west, and a church to the northwest. The Town of Leesburg's Joint Land Management Area is located on the north side of the subject property. The Goose Creek Reservoir, Goose Creek, and a water intake owned by the City of Fairfax are located approximately 1,500 feet to the east of the proposed plant.

Staff notes that applications have been received from Luck Stone Corporation and Loudoun Water regarding a proposed expansion of quarry operations and the construction of a water treatment facility on the vacant land to the east of the Stonewall site (ZMAP 2009-0003, Luck Stone Quarry and ZMAP 2009-0004, Loudoun Water and Luck Stone Quarry).

The subject property contains significant environmental features, including river and stream corridor resources, wetlands, forest resources, steep and moderately steep slopes, diabase, plant and wildlife habitats, and historic and archaeological resources. A Scenic Creek Valley Buffer extends 150 feet from the channel scar line of Sycolin Creek onto the property. The Quarry Notification Overlay District exists on-site and the property is generally located within the Ldn 60 noise contour 1-mile buffer of the Leesburg Executive Airport. In addition, rights-of-way for two underground natural gas transmission lines and overhead electrical transmission lines bisect the site in a north-south direction.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

The subject site is governed under the policies outlined in the Revised General Plan, the Revised Countywide Transportation Plan (CTP), and the Toll Road Plan (TRP).

Being newer than the TRP, the Revised General Plan supersedes the TRP when there is a policy conflict between the two (*Revised General Plan, Chapter 1, Relationship to Other County Planning Documents, text*). The policies of the Bicycle and Pedestrian Mobility Master Plan (Bike/Ped Plan) also apply.

The subject properties are principally located within the Transition Policy Area with approximately 2.3 acres within the Leesburg Joint Land Management Area (JLMA) (*Revised General Plan, Chapter 7, Planned Land Use Map; Chapter 9, Leesburg & JLMA Map*).

Specifically, the non-residential policies of Chapters 8 (Transition Policy Area) and 11 (Implementation) of the Revised General Plan apply to the proposed development including open spaces, stormwater management, quarry compatibility, streetscape and land use arrangement, building scale and form, noise impacts, and lighting and signage. The infrastructure polices of Chapter 2 (Planning Approach) also apply including energy and communication facilities.

The environmental features on the subject site were assessed applying the Green Infrastructure policies of Chapter 5 (The Green Infrastructure: Environmental, Natural, and Heritage Resources) of the Revised General Plan, including policies pertaining to river and stream corridor resources, wetlands, forest resources, steep and moderately steep slopes, diabase, plant and wildlife habitats, and historic resources.

ANALYSIS

LAND USE

The County's vision for the Transition Policy Area is for land uses that provide a visual and spatial transition between the suburban development in the east and rural development in the west (*Revised General Plan, Chapter 8, General Policies, General Policy 2*). Developments within the Transition Policy Area will fully integrate the elements of the Green Infrastructure and establish natural open spaces as a predominant visual element and enhancement to the area's river and stream corridors (*Revised General Plan, Chapter 8, General Policies, General Policy 2*).

With the exception of approximately 2.3 acres within the Leesburg JLMA, the subject property is located within the Lower Sycolin subarea, which the Plan envisions to have a more rural character with lower densities and greater open space requirements than other subareas in order to protect the drinking water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs and to facilitate a transition to the Rural Policy Area (*Revised General Plan, Chapter 8, Transition Policy Area Subareas Map; Lower Sycolin and Middle Goose Subareas, text; and, General Policies, General Policy 1*). Open spaces will be the dominant visual feature of sites within the Lower

Sycolin subarea (*Revised General Plan, Chapter 8, Lower Sycolin and Middle Goose Subareas, text*). The County envisions that the Lower Sycolin subarea will have a base residential density of 1 dwelling per 10 acres in a clustered pattern, with the option to rezone to a density of 1 dwelling per 3 acres in a Rural Village (*Revised General Plan, Chapter 8, Lower Sycolin and Middle Goose Subareas, text*). Development will maintain a minimum of 70 percent of a site as open space (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 2*). Central and communal water and wastewater systems are preferred over individual utility systems in this portion of the Lower Sycolin subarea (*Revised General Plan, Chapter 8, Lower Sycolin and Middle Goose Subareas, text*). Additionally, the County will protect the Luck Stone Quarry in the Lower Sycolin subarea from incompatible uses by ensuring that encroaching new development does not hinder the quarry operations (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 26*).

The County encourages the development of non-residential uses in the Transition Policy Area that provide a transition from suburban to rural. Such uses may include, but are not limited to, equestrian centers, golf courses, retail nurseries, boarding schools and kennels, and large institutions, provided they meet specific criteria that address the nature, scale, and intensity of the use, market area, and design characteristics (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 15*). Institutional uses include government offices and facilities; and public or private health, recreational, or educational uses and facilities such as schools, training centers, universities, libraries, hospitals, camps, congregate care facilities, or similar facilities (*Revised General Plan, Glossary, Institutional Uses, definition*). Institutional uses will be compatible with the policies of the Transition Policy Area and serve to promote a rural character while serving both the rural and suburban populations (*Revised General Plan, Chapter 8, Land Use Pattern, text*). Non-residential uses will serve to define the Transition Policy Area as a unique planning area. The County will allow for a range of uses that are compatible with desired development patterns and the rural landscape and are at intensities not permitted within the Rural Policy Area (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 16*).

Consistency Between Applications

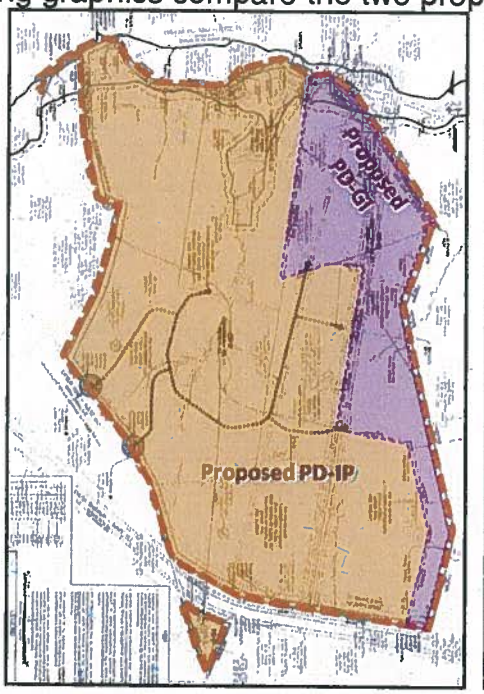
Staff notes the proposed Hybrid Energy Park comprises approximately 87.2 acres of the larger 291.5-acre Stonewall Secure Business Park (ZMAP 2008-0017, et alia). The Stonewall Secure Business Park application includes a Rezoning Amendment (ZMAP 2008-0017) and three Special Exceptions (SPEX 2008-0068, SPEX 2008-0069, & SPEX 2008-0070) to allow 6.81 million square feet of high-security office and industrial uses. The current application does not address the relationship of the two applications. A review of the Rezoning Amendment and Special Exceptions was sent under separate cover on May 21, 2009.

Staff notes that the two applications contain inconsistencies regarding the proposed zoning boundaries and the acreages of those zoning categories:

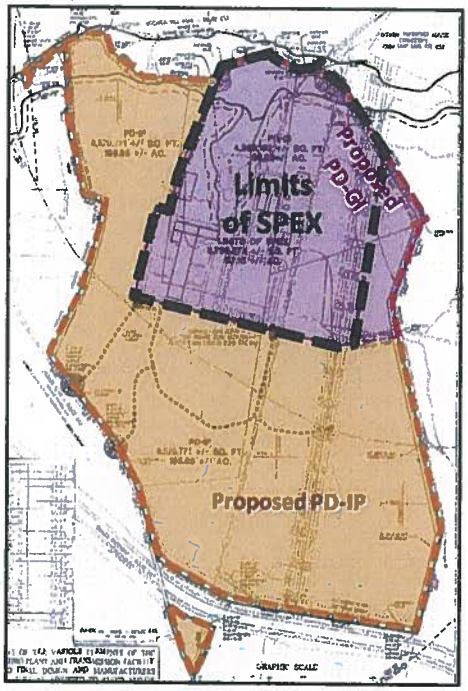
	Stonewall Secure Business Park (ZMAP 2008-0017)	Hybrid Energy Park (SPEX 2009-0009)
PD-GI	62.5	98.7
PD-IP	231.8	195.6
Total	294.3	294.3
SPEX Area	87.2	not included

Comparison of Stonewall Applications

The following graphics compare the two proposals.



Stonewall Secure Business Park (ZMAP 2008-0017)



Hybrid Energy Park (SPEX 2009-0009)

The differences between the applications notwithstanding, while staff understands that the special exception and rezoning applications are separate, the proposed land uses are related. Currently, the relationship of the two proposals is unclear. Additional information is necessary to determine whether the uses will be integrated, to determine whether environmental resources will be adequately protected, and to assess the full transportation impacts of the two proposals.

Energy and Communication Facilities

The County supports the timely delivery of electrical service to businesses and households as development occurs, but seeks to minimize the negative visual impacts through regulations. Additionally, the County intends to develop policies for capital-intensive technology industries that are flexible enough to meet the needs of the industry but are effective in preventing harmful environmental impacts on the community (*Revised General Plan, Chapter 2, Energy and Communication Facilities, text*). Electric generation facilities that use clean burning and environmentally sound and proven fuel sources for power generation can be located only where their impact on the surrounding land uses and the environment is compatible (*Revised General Plan, Chapter 2, Energy and Communication Policies, Energy and Communication Policy 4*). The County anticipates the development and implementation of a comprehensive utilities plan to address the impacts and location requirements of energy and communications facilities (*Revised General Plan, Chapter 2, Energy and Communication Policies, Energy and Communication Policy 6*). Areas disturbed by any public utility expansions should be planted and/or reforested and screened from adjacent uses (*Revised General Plan, Chapter 2, Energy and Communication Policies, Energy and Communication Policy 2*).

The applicant also stated that the site contains the resources necessary for a utility plant, including two interstate natural gas transmission lines and three 230kV Dominion Virginia transmission circuits on two separate aerial structure lines (*Statement of Justification, March 25, 2009, p. 4*). It is unclear what portion of the electricity to be generated on-site would be used by the Stonewall Secure Business Park and what portion would be routed to the local electrical grid.

The applicant has provided a plan view depicting possible locations for the utility plant facilities. These facilities would cover approximately 33 acres (approximately 38 percent) of the 87-acre Special Exception Area. Residential uses lie approximately 450 feet to the west of the proposed Special Exception Area and power plant turbines. The applicant did not provide elevations or heights of the facilities.

The County anticipates that a visual and spatial transition could be achieved through an appropriate scale, intensity of use, and design characteristics, including both site design and building design, between the Suburban Policy Area to the east and the Rural Policy Area to the west. With the information provided, it is unclear how elements of the Green Infrastructure will be integrated into the development, whether natural open spaces will be developed as a predominant visual element and enhancement to the area's river and stream corridors, or how the development would be compatible with the low-density residential development existing or planned in the remainder of the subarea.

Given the nature and scale of the proposed use, the proximity of residential uses 450 feet to the west, the proximity of the Leesburg Executive Airport, and the presence of sensitive environmental features, more information is necessary to discern the impact

of the utility plant. Although the general location of the power plant facilities have been depicted in plan view on the plat, no information has been given regarding the disposition of the areas outside the power plant footprint. While the areas outside the power plant footprint are covered under the Stonewall Secure Business Park application (ZMAP 2008-0017, et alia), that application does not offer site-specific development information.

Currently, this application and Stonewall Secure Business Park (ZMAP 2008-0017, et alia) are being considered separately. Given that the two applications have been submitted separately, the current application will generally be evaluated as a stand-along application. However, it is staff's understanding that uses within the proposed Stonewall Secure Business Park may be reliant on energy produced from the proposed power plant. It is unclear whether the Business Park will be viable without the power plant. Additionally, the combined impact of the two applications is unclear. Consideration of the power plant impacts without consideration of the Business Park impacts may not allow elements of the Green Infrastructure, open space, or compatibility to be adequately addressed. (See the Green Infrastructure section for a more extensive discussion of the elements of the Green Infrastructure).

Staff recommends the applicant combine the Hybrid Energy Park and Stonewall Secure Business Park applications to ensure that the layout and design of the two are consistent with Plan policies, to adequately assess all the environmental on-site resources, to determine areas most suitable for development, to assess transportation impacts, and to ensure that the necessary infrastructure will be available to serve the proposed uses. The applicant should specify the number of employees, the amount of truck traffic, and compatibility measures between the proposed use and the nearby residential uses, and explain the impacts of the generated traffic to the surrounding roadway network.

Staff recommends that the applicant provide further information regarding the visual and physical impacts of the utility plant on site resources, nearby residential uses, and the Leesburg Executive Airport. Staff requests information regarding the relationship of the proposed facilities to these uses, along with anticipated compatibility and mitigation measures, such as reforestation, screening, and water protection. Staff also recommends that the applicant provide information regarding the two wastewater lines and pumping equipment between the power plant and the Leesburg Wastewater Treatment Plant.

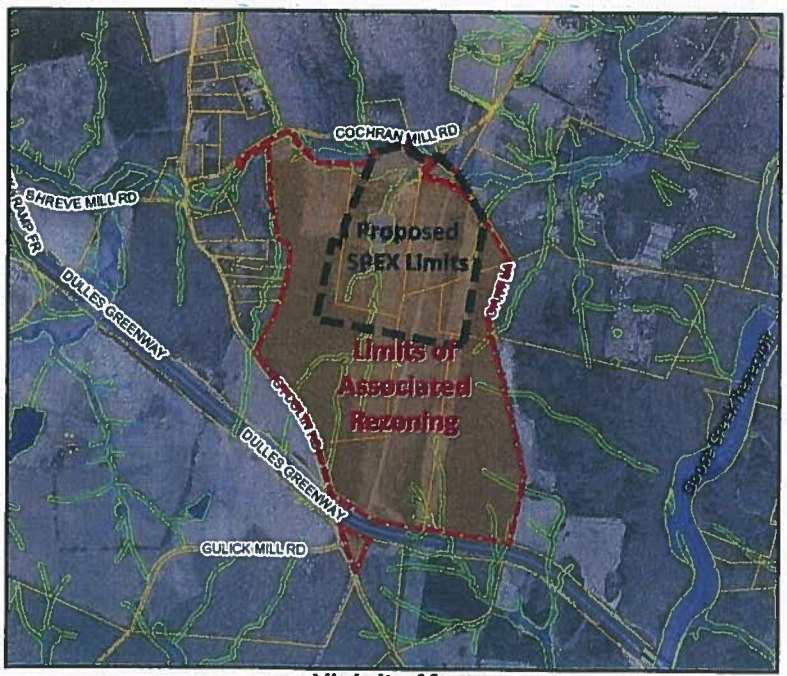
Staff requests that the applicant provide enough information to effectively assess the proposal, including information regarding any internal resource protection areas or resource protection measures. The applicant should also explain and demonstrate how elements of the Green Infrastructure will be integrated into the

development, how natural open spaces will be developed as a predominant visual element and enhancement to the area's river and stream corridors, and how the development will be compatible with the low-density residential development existing or planned in the remainder of the subarea. With consideration of elements of the Green Infrastructure, open space, and the proximity of neighboring residential uses, the applicant should demonstrate how the application will effect a visual and spatial transition between the Suburban Policy Area and the Rural Policy Area and demonstrate how and why the proposal is appropriate for the Lower Sycolin subarea of the Transition Policy Area.

The applicant should also provide information regarding alternative locations and configurations that may have been considered, both within the limits of the proposed Special Exception and the larger Stonewall Business Park.

GREEN INFRASTRUCTURE

The Green Infrastructure is a collection of natural, cultural, heritage, environmental, protected, passive, and active resources that are integrated into a related system. These resources include wetlands, steep and moderately steep slopes, and vegetated landscapes (*Revised General Plan, Chapter 5, Green Infrastructure Policies, Green Infrastructure Policy 1*). The County uses integrated management strategies for the Green Infrastructure to ensure that all land use planning and development respect and preserve the holistic nature of the elements of the Green Infrastructure (*Revised General Plan, Chapter 5, Green Infrastructure Policies, Green Infrastructure Policy 2*). The Plan calls for all development within the Transition Policy Area to be clustered, provide ample open space, and fully implement the Green Infrastructure policies (*Revised General Plan, Chapter 8, Land Use Pattern, text*).



Vicinity Map

The subject site contains significant Green Infrastructure resources including river and stream corridors, floodplains, wetlands, riparian vegetation, perennial and intermittent streams, natural drainageways, forest resources, steep and moderately steep slopes, plant and wildlife habitats, historic and archaeological resources, diabase soils, and hydric soils. A Scenic Creek Valley Buffer extends 150 feet from the

channel scar line of Sycolin Creek onto the property. The site is also impacted by the Ldn 60-65 and Ldn 60 1-mile buffer of the Airport Impact Overlay District associated with the Leesburg Executive Airport and the Quarry Notification Overlay District associated with the Luck Stone Quarry. Green Infrastructure elements are discussed below.

Air Quality

Loudoun County's air quality is threatened by air pollution from automobile and aircraft emissions, heating furnaces, and power plants. More efficient and better planned transportation and pedestrian networks, tree preservation and planting, reforestation and preservation of natural landscapes will help minimize the threat to the County's air quality. In order to meet the federal goals of the Clean Air Act, the County offers an integrated land use approach that protects air quality by planning development in locations that are close to major transportation facilities and transit nodes and promoting and implementing alternative modes of transportation (*Revised General Plan, Chapter 5, Air Quality, text*).

The County will develop land use and transportation policies and measures that tend to reduce single occupancy vehicle trips, vehicle miles traveled, and associated emissions in order to improve air quality. Such measures will support the creation of pedestrian and bicycle facilities, park-and-ride lots, and mass transit options (*Revised General Plan, Chapter 5, Air Quality Policies, Air Quality Policy 1*). The County will promote tree planting and preservation as a means to improve air quality (*Revised General Plan, Chapter 5, Air Quality Policies, Air Quality Policy 2*). The County will comply with the requirements of the federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP) (*Revised General Plan, Chapter 5, Air Quality Policies, Air Quality Policy 4*). Loudoun County acknowledges its location in the Washington, DC-MD-VA Nonattainment Area. The County will play an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB) and will do its part in the implementation of the Phase II Attainment Plan for the Washington Metropolitan Nonattainment Area, as well as future emissions reduction programs (*Revised General Plan, Chapter 5, Air Quality Policies, Air Quality Policy 5*).

The applicant states that the proposed Hybrid Energy Park will be required to comply with the requirements of the Clean Air Act Amendments of 1990[1]. The applicant also states that natural gas, which would be combusted in the power plant, has 63 percent of the carbon content of coal and 80 percent of the carbon content of petroleum. The natural gas would be drawn from underground gas lines, which run across the site,

[1] Supplemental Information regarding air quality is provided in Attachment 1.

precluding the use of tanker trucks and their associated pollution. The applicant states that the proposed power plant may qualify for credits that would enable the closure of a coal-fired power plant within a Power Service Area. The boundaries of the referenced Power Service Area have not been defined and it is unclear which facilities might be considered for closure. The applicant also states that local approval of the proposed special exception and commission permit are the first steps in a longer process, which involve federal and State approvals (*Statement of Justification, March 25, 2009, p.7*).

Given the nature of the application and its relationship to the Clear Air Act, the SIP, and the utilization of wastewater effluent from the Leesburg Wastewater Treatment Plant, the applicant will need to coordinate with the Virginia Department of Environmental Quality (DEQ), the Metropolitan Washington Council of Governments (MWCOG), and the Town of Leesburg. The applicant has not provided details regarding coordination with these entities or with the owners of the natural gas transmission lines and the electrical transmission lines.

Additionally, the impact of the power plant on the surrounding uses and the region is unclear. To discern the nature of the proposal and effectively evaluate it for conformance with the Plan, staff would expect the applicant to provide information regarding plant operations, compliance with the requirements of the federal Clean Air Act and its Amendments, the State Implementation Plan (SIP), and regional Attainment plans, and other measures to improve air quality, such as tree planting and preservation.

Staff recommends that the applicant coordinate with the staff of the Virginia Department of Environmental Quality (DEQ) at the Northern Virginia Regional Office and the Metropolitan Washington Council of Governments (MWCOG) regarding compliance with the requirements of the Clean Air Act Amendments, the State Implementation Plan, and the air permit review process. The applicant should explain the timing and the relationship of the land use applications to federal and State permits.

The applicant should address air quality impacts of the plant, both local and regional, and provide information regarding plant operations, compliance with the requirements of the federal Clean Air Act and its Amendments, the State Implementation Plan (SIP), and regional Attainment plans, and other measures to improve air quality, such as tree planting and preservation.

Because the proposed power plant would also be dependant upon its interface with natural gas supplies, electrical power transmission facilities, and treated wastewater, the applicant should also provide information regarding the nature of those interfaces and the status of coordination with the owners of those facilities.

Staff recommends that any use be conditioned on the approval of the applicable State and federal permits.

The applicant should also specify the expected number of employees for the power plant and provide details regarding the expected plant operating schedule. The applicant should profile any measures being proposed to reduce single occupancy vehicle trips, vehicle miles traveled, and associated emissions in order to improve air quality, such as the creation of pedestrian and bicycle facilities, park-and-ride lots, and mass transit options.

River & Stream Corridor Resources

River and stream corridor resources are significant elements of the Green Infrastructure. Developments within the Transition Policy Area will fully integrate these elements (*Revised General Plan, Chapter 8, General Policies, General Policy 2*). Additionally, the County Comprehensive Plan limits development potential within the Lower Sycolin subarea in order to protect the drinking water resources of the reservoirs (*Revised General Plan, Chapter 8, General Policies, General Policy 1*). The Plan calls for a 50-foot management buffer surrounding 100-year floodplains and adjacent steep slopes in order to protect the stream corridor from upland disturbance and adjacent development. Steep slopes extending up to 100 feet beyond the originating stream or floodplain shall be included (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policies, River and Stream Corridor Resources Policy 2*). The Comprehensive Plan permits a limited number of uses in the stream corridor, including passive and active recreation, road crossings, pervious paths and trails, and agricultural activities (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policies, River and Stream Corridor Resources Policy 18*).

The Revised General Plan calls for the establishment of strict performance standards and best management practice requirements within County ordinances and regulations for Scenic Creek Valley Buffers (SCVB) to address and satisfy the ecosystem, water quality, flood protection, habitat, and use objectives of the River and Stream Corridor Resources policies. Performance standards and criteria will ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts. Requiring best management practices for the activities permitted within the river and stream corridors will help to protect and conserve natural resources and their processes, and ensure both economic and ecological success (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policies, River and Stream Corridor Resources Policy 16*). The SCVB is further defined by Section 5-1000 of the Zoning Ordinance and applies to areas adjacent to scenic rivers and all waterways draining more than 640 acres by providing a setback area from the channel scar line. It was created in part to promote water quality and the preservation of significant

environmental resource areas, wildlife habitat and corridors, and native vegetation areas and to implement the Comprehensive Plan (*Revised 1993 Zoning Ordinance, Section 5-1001*).

The subject property is located within the Goose Creek Watershed and contains significant river and stream resources associated with Sycolin Creek. Sycolin Creek is a tributary of Goose Creek, which in turn flows into the Potomac River. Goose Creek is impounded east of the subject property, forming the Goose Creek Reservoir. The subject property lies approximately 1,500 feet from the Goose Creek Reservoir.

The applicant has depicted the limits of a 50-foot River and Stream Corridor Resource Management Buffer on the plat but has not described the uses to be permitted in the area. Although a 150-foot SCVB exists along Sycolin Creek, its limits have not been annotated on the plat. The relationship of the SCVB to the 50-foot River and Stream Management Buffer is unclear. Additionally, the proposal appears to impact portions of the 50-foot Management Buffer, although the plat does not address impacts to these resources or anticipated mitigation measures. Additionally, two wastewater lines would need to be constructed in easements connecting the Leesburg Wastewater Treatment Plant with the site. No information has been provided regarding the possible alignment of these lines or their expected impacts to local waterways and other Green Infrastructure resources.

Proposed Special Exception Limits and Power Plant Area

Given the importance of the site's stream corridors, the intensity of the proposed development, and in order to protect the site's stream corridors and drinking water resources, staff recommends that the 50-foot Management Buffer be provided along the Sycolin Creek floodplain and the adjacent steep slopes and that the applicant limit uses in the corridor to those specified in County policies. Adjacent steep slopes extending up to 100 feet beyond the originating stream or floodplain should also be buffered.

Additionally, staff recommends that the applicant depict the 150-foot Scenic Creek Valley Buffer on the plat so that the extent of the Buffer and its relationship to the 50-foot River and Stream Corridor Management Buffer can be assessed. Uses within the SCVB should be limited to those defined in the Revised 1993 Zoning Ordinance.

The applicant should also address anticipated impacts to local waterways from the construction of two wastewater lines and pumping facilities between the power plant and the Leesburg Wastewater Treatment Plant.

Wetlands

The County supports the federal goal of no net loss to wetlands (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policies, River and Stream Corridor Resources Policy 23*). Plan policies call for the County to work with the U.S. Army Corps of Engineers regional office to regulate wetlands outside of river and stream corridors (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policies, River and Stream Corridor Resources Policy 13*). In the event of an impact, compensatory mitigation (restoration, creation, enhancement, and preservation) could replace the loss of wetland functions in the watershed to meet the County's goal of no net loss to the existing acreage and functions of wetlands.

The County predictive wetlands model and the applicant's plat depict wetlands and drainages throughout the site. Several wetlands are hydrologically connected to Sycolin Creek and would be impacted by the proposed use. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends that the applicant avoid impacts to wetlands and natural drainages and design the project so that the functionality of these features are preserved. Staff recommends that the applicant pay special attention to wetlands and drainages hydrologically connected to Sycolin Creek to help ensure the preservation of the Creek corridor, wildlife habitat, and native vegetation and promote water quality and flood control. Furthermore, degraded wetlands should be restored if those sites are of significant merit. If impacts to wetlands are

unavoidable, staff recommends on-site mitigation. Areas near Sycolin Creek may provide areas suitable for wetlands mitigation. Staff recommends that the applicant investigate the potential for these on-site areas to function as wetlands mitigation sites. If on-site mitigation is not possible, staff recommends mitigation within the same watershed and, if mitigation is not possible within the same watershed, within other parts of Loudoun County.

Forest Resources

The subject property is heavily forested. The Revised General Plan calls for the protection of forests and natural vegetation for the various economic and environmental benefits that they provide (*Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 1*). Plan policies also call for the submittal and approval of a tree conservation or forest management plan prior to any land development that "demonstrates a management strategy that ensures the long-term sustainability of any designated tree save area" (*Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 3*). Forests and indigenous vegetation will be preserved on steep slopes (greater than 25 percent). On moderately steep slopes (15 to 25 percent grade) clearing will be limited to only essential clearing necessary for home construction, road construction, and utility construction. Silviculture activities may be allowed on moderately steep slopes provided that an approved Forest Management Plan is implemented (*Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 2*).

Gas Line Easement
April 8, 2009

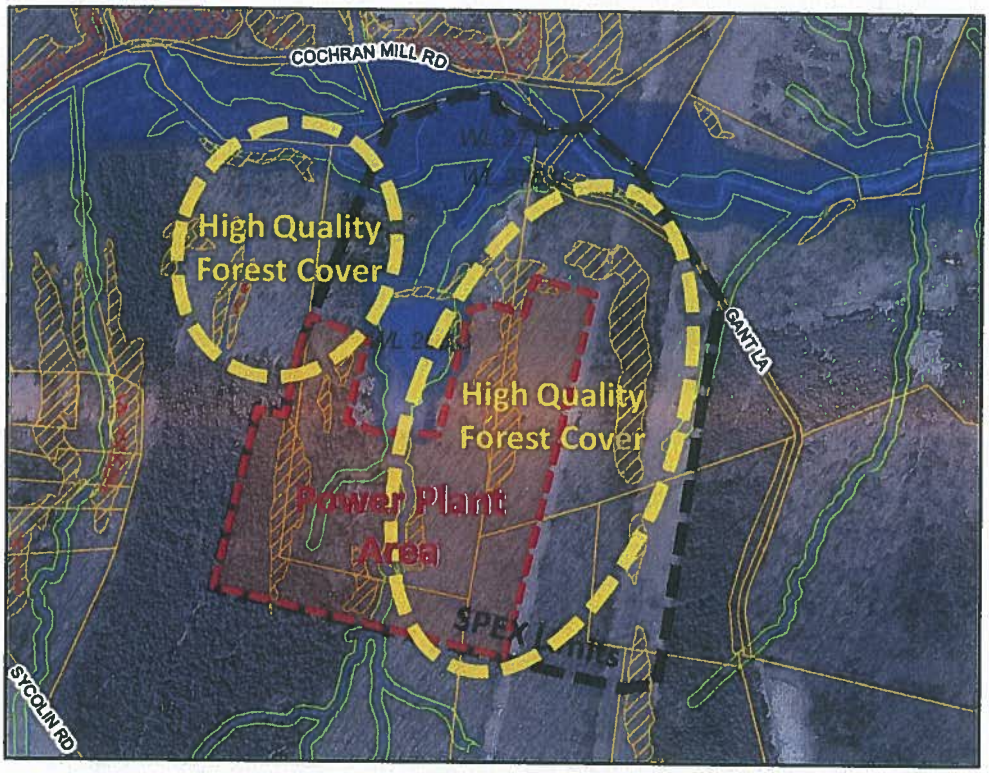
The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) includes a Forest Management Plan and Cover Type Map prepared by Zimar & Associates, Inc. that describes the species, quality, age, and location of the existing vegetation. Six cover types were identified on the subject property. The highest quality forest cover (Cover Type 1) consists primarily of upland hardwoods and is located along either side of the transmission line easement with another area south of the Sycolin Creek corridor. The Forest Management Recommendations from applicant's Forest Management Plan state that "[t]his Cover Type is of the highest priority for forest management and preservation considerations due to the quality and size class of the trees it contains. Portions of this cover type may be considered for preservation during the development planning

process" (*Forest Management Plan and Cover Type Map, Cover Type 1 text, p. 10*). Another high quality Cover Type is Cover Type 2 (bottomland hardwoods), which is located primarily within the Sycolin Creek floodplain and southeast of the site's largest pond. The Forest Management Plan states that Cover Type 2 is "a high priority for preservation as it is currently serving as a riparian buffer area. Vegetated riparian buffers promote stream bank stability and filter run off generated from agricultural and construction activities, thus increasing water quality. Furthermore these areas provide excellent wildlife habitat for a variety of native species" (*Forest Management Plan and Cover Type Map, Cover Type 2 text, p. 10*).

The recommendations of the applicant's Forest Management Plan closely mirror County policies, which encourage the preservation of existing vegetation and wildlife habitat on developing properties (*Revised General Plan, Chapter 5, Forests, Trees, and Vegetation Policies, Forest, Trees, and Vegetation Policy 10*).

The applicant has depicted a 50-foot wide "Tree Preservation Area" along the exterior boundary of the larger Stonewall Business Park, consisting primarily of Cover Types 3 (early successional forest containing immature Eastern red cedar and Virginia pine) and 4 (Virginia pine), which are both low priorities for preservation (*Forest Management Plan and Cover Type Map, Cover Type 3 & 4 text, p. 10*). While these areas are low priorities for preservation, some of the vegetation within these areas may be able to fulfill buffer requirements. Regarding Cover Type 3, the Forest Management Plan states that "[t]here are, however, numerous [E]astern red cedar saplings and smaller trees up to 6" DBH [diameter at breast height] within this Cover Type that may be considered for transplanting for use as visual buffers or in landscaped settings" (*Forest Management Plan and Cover Type Map, Cover Type 3 text, p. 10*). Regarding Cover Type 4, the Forest Management Plan states, "[a]s the preservation of Virginia pine is not a priority, many of these trees may be removed. This will allow for the release of more desirable hardwood species that are present in the understory such as oak and hickory. The removal of Virginia pine will also improve safety" (*Forest Management Plan and Cover Type Map, Cover Type 4 text, p. 10*).

The siting of the proposed power plant would impact high-quality vegetation, including Cover Types 1 and 2 (upland hardwoods and bottomland hardwoods, respectively). The plat does not address impacts to these resources or anticipated mitigation measures.



Forest Resources

Staff recommends that the application be revised in order to preserve as much of the high-quality existing vegetation as possible and incorporate it into the development, with particular attention to Cover Types 1 and 2 (upland hardwoods and bottomland hardwoods, respectively). Such a strategy could help meet the open space polices of the Transition Policy Area, maintain the site's forests and natural vegetation, improve its aesthetic values, and protect existing riparian buffers. For these reasons, the application should commit to additional tree save areas. Particular attention should be given to preserving and maintaining the existing forest cover adjacent to Sycolin Creek, the transmission lines, and the Dulles Greenway, the avoidance of impacts to steep slopes, and limitations on the clearing of moderately steep slopes, with the exception of unavoidable clearing due to road or utility line construction.

For Cover Types 3 and 4 (early successional forest and Virginia pine, respectively), staff recommends that the applicant commit to the best management practices contained within the Forest Management Plan including the transplanting of desirable species and the removal of Virginia pine. If supplemented with suitable hardwood species, these areas could serve as effective buffers. However, in their current state, these areas should not be proposed as tree save areas.

Staff further recommends a commitment to a long-term maintenance plan and forestry best management practices, including the removal of invasive species.

Steep and Moderately Steep Slopes

The hazards associated with the disturbance of steep and moderately steep slopes include erosion, building and/or road failure, and downstream flooding. For these reasons, County policies call for a prohibition of land disturbance on slopes with a grade of more than 25 percent and special performance standards to protect slopes with grades from 15 to 25 percent. Performance standards include best management practices, locational clearances for clearing and grading, and avoidance of natural drainageways (*Revised General Plan, Chapter 5, Steep Slope and Moderately Steep Slope Policies, Steep Slope and Moderately Steep Slope Policies 1 & 3*). Such consideration gives the County some assurance that steep and moderately steep slopes and their associated resources, such as surface waters, forests, and wetlands, will be protected.

The project area features several steep and moderately steep slope areas, which are depicted on the plat. The siting of the proposed power plant would impact steep and moderately steep slopes. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends the applicant revise the application and submit a design that respects the integrity of steep and moderately steep areas. If the applicant intends to intrude into any moderately steep areas the applicant should explain what special performance standards or treatments are proposed for those areas. The applicant should avoid disturbance of steep slopes.

Plant and Wildlife Habitats

The County promotes the protection of the County's vegetative and wildlife resources and the creation of wildlife habitats by encouraging the incorporation of indigenous vegetation into the landscape design of new development and encouraging a compact, concentrated development pattern (*Revised General Plan, Chapter 5, Plant and Wildlife Habitats Policies, Plant and Wildlife Habitats Policy 7*). Plan policies state that development applications with the likelihood of impacting one or more natural heritage resources will conduct a species assessment and develop a plan for impact avoidance if the presence of a natural heritage resource is identified. The Virginia Department of Conservation and Recreation (DCR), Division of Natural Heritage (DNH) defines natural heritage resources to include rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and significant geologic formations (*Revised General Plan, Chapter 5, Plant and Wildlife Habitats Policies, Plant and Wildlife Habitats Policy 8*).

The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) contains an Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment. The assessment identified the following natural heritage resources within the study area, which included the Stonewall site:

- A rare plant community (Northern Hardpan Basic Oak-Hickory Forest) in two locations on the eastern and southeastern portion of the study area. The exact location of these resources was not described in the study and is not annotated on the plat;
- Suitable habitat for and the documented presence of the wood turtle (*Glyptemys insculpta*), a state-threatened species, along Sycolin Creek;
- Potential foraging habitat for two state-threatened bird species (the loggerhead shrike and Henslow's sparrow); and,
- Hairy beardtongue (*Penstemon hirsutus*), a state-rare plant associated with soils derived from diabase rock, on the northern portion of the power line easement in the central portion of the site (*Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment, Wetland Studies and Solutions, Inc., November 8, 2004*).

Because the presence of the state-listed wood turtle has been documented on the site, the applicant's wetlands consultant recommended various implementation measures, to include:

- A winter-time (December through mid-March) search to document if wood turtles hibernate within the portion of Sycolin Creek located on the project site;
- Locating any in-stream work (such as road and utility crossings) in areas that do not provide high-quality hibernation habitats;
- Placement of a time-of-year restriction on all in-stream work to avoid impacts to hibernating turtles;
- Implementation of strict adherence to erosion and sediment control measures;
- Use of bridge spans, bottomless culverts, or culverts countersunk at least six inches below the streambed to prevent barriers to the migration of aquatic organisms and allow them to pass through the culvert;
- Searches for individual wood turtles within the limits of clearing before the initiation of any construction in areas of suitable habitat and the relocation of any wood turtles found during the search; and,
- Provision of educational materials to contractors working in areas of potential wood turtle habitat to make them aware of the possibility of wood turtles on the site and to familiarize them with the species' appearance, status, and life history (*Memorandum, Wetland Studies and Solutions, Inc., September 22, 2006*).

For a previous larger rezoning application (ZMAP 2005-0028, Creekside), which included all of the Stonewall site and other lands, the Department of Conservation and

Recreation (DCR) reviewed the project (dated January 18, 2006) and recommended that the application preserve the Northern Hardpan Basic Oak-Hickory significant communities. DCR also recommended that the applicant conduct additional surveys of suitable habitat for rare diabase species in June 2006 and coordinate with the Virginia Game and Inland Fisheries (VDGIF) and the U. S. Fish and Wildlife Service (USFWS) regarding compliance with protected species legislation. Because the previous habitat survey covered a larger area than the current application, the location of the Northern Hardpan Basic Oak-Hickory community is unclear.

The siting of the proposed power plant would impact plant and wildlife habitats. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends that the applicant verify the location of the Northern Hardpan Basic Oak-Hickory community. The applicant should also verify whether additional surveys of suitable habitat for rare diabase species were conducted, as recommended by DCR, and coordinate with the VDGIF and the USFWS regarding compliance with protected species legislation. Staff recommends that the Northern Hardpan Basic Oak-Hickory community be preserved, that the applicant identify the community on the plat, and that applicant specify and commit to protection measures. Staff also recommends that the applicant preserve and buffer suitable habitat for the wood turtle, the loggerhead shrike, Henslow's sparrow, and the hairy beardtongue. The applicant should commit to implementation measures recommended by the applicant's consultant for the wood turtle. The applicant should also incorporate indigenous vegetation into the landscape design and utilize a compact, concentrated development pattern.

Historic Resources

The Revised General Plan states the County will require an archaeological and historic resources survey as part of all development applications (*Revised General Plan, Chapter 5, Historic and Archaeological Resources Policies, Historic and Archaeological Resources Policy 11*). The County will protect structures and other features of historic significance in the context of their natural settings and will work with landowners to convey the historic value of the resource to the community at large. Structures and other features of particular historical significance will be retained, restored, or utilized in adaptive reuse (*Revised General Plan, Chapter 5, Historic and Archaeological Resources Policies, Historic and Archaeological Resources Policy 8*).

The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) includes a Phase 1 archaeological survey for the subject property. The plat identifies areas of identified archaeological and historic resources within the limits of

the proposed Special Exception. Staff's review of the submitted report will be sent under separate cover.

SITE DESIGN

Open Spaces

Within the Transition Policy Area, the Plan envisions that natural open spaces will be the predominant visual feature of the landscape and an enhancement to the area's river and stream corridors (*Revised General Plan, Chapter 8, General Policies, General Policy 2*). All development within the Transition Policy Area will be clustered with 50 to 70 percent open space and the full implementation of the Green Infrastructure policies (*Revised General Plan, Chapter 8, Land Use Pattern, text*). The County envisions that the Lower Sycolin subarea will have a more rural character with lower densities and higher open space requirements than other subareas to facilitate a transition to the Rural Policy Area (*Revised General Plan, Chapter 8, Lower Sycolin and Middle Goose Subareas, text*). Within the Lower Sycolin subarea, at least 70 percent of the site will be maintained as open space (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 2*). Open space areas will serve as a transition between the private and public realm. Open spaces will also form a contiguous network, integrated with pedestrian trails, both within the development and, where feasible, with neighboring properties (*Revised General Plan, Transition Policy Area Design Guidelines, Transition Policy Area Design Guideline 3d*).

The applicant's proposed open space system appears to consist of a 50-foot perimeter buffer and the floodplain along the northern border of the site (see previous River and Stream Corridor Resources section). No areas are formally designated as open space. County policies anticipate 70 percent of the site area as open space.

To ensure compatibility and meet the intent of the Transition Policy Area as a visual and spatial transition from the Suburban Policy Area to the Rural Policy Area, County polices anticipate a contiguous open space system incorporating environmentally sensitive features, culturally significant sites, and other Green Infrastructure elements that form a contiguous network, incorporate pedestrian trails, and enhance the area's river and stream corridors. Perimeter buffers, unless designed in conjunction with Green Infrastructure elements, do not generally satisfy open space needs. The current application does not contain enough information to evaluate whether the open space elements will be protected, connected, incorporate environmentally sensitive features, or help to buffer neighboring residential uses. Additionally, if the site were to develop as a power plant within a secure business park, the application does not address security measures and implications for open space, trails, and connectivity and views from adjacent properties.

The proposed area and quality of open spaces do not adequately fulfill the intent of County policies. Staff recommends that the applicant develop a contiguous open space system comprising 70 percent of the site area, encompassing and enhancing significant elements of the Green Infrastructure, and forming the predominant visual feature of the landscape. Priority should be given to natural areas along Sycolin Creek, drainageways, wetlands, steep slopes, moderately steep slopes, forest resources, stream corridors, and other natural areas to protect drinking water resources, along with historic and archaeological resources (see previous Green Infrastructure discussion). Open spaces should be designed to mitigate views from public rights-of-way and buffer neighboring residential properties. Open spaces should connect with those of the larger business park.

Stormwater Management

The project's proposed impervious surfaces, including parking lots and rooftops, are anticipated sources of runoff and pollutants, such as litter, road salts, oil, grease, and heavy metals, which impact water quality (*Revised General Plan, Chapter 5, Surface and Groundwater Resources, text*). Grass and landscape areas can also be expected to have substances, such as fertilizers, pesticides, and herbicides, applied to them each year. Increased storm runoff volumes and velocities are also expected, which could scour adjacent drainageways and impact wetland resources, adjacent properties, and wildlife habitat.

To protect water resources and the integrity of neighboring properties, the Revised General Plan calls for low impact development (LID) techniques, which integrate hydrologically functional designs with methods for preventing pollution (*Revised General Plan, Chapter 5, Surface Water Policies, Surface Water Policy 2*). LID approaches seek to control runoff discharge, volume, frequency, and quality in order to mimic predevelopment runoff conditions through a variety of small-scale site design techniques. LID techniques can help reduce sedimentation and erosion, trap and remove pollutants such as nitrogen, phosphorus, metals, and organic compounds, protect wildlife habitat, store flood waters, and maintain the overall water quality of nearby streams. LID facilities should be located as close as possible to impervious areas and utilize the landscape and soils to naturally move, store, and filter run-off. The associated flow reductions and water quality improvements can then benefit the receiving streams. LID techniques include:

- Permeable paving;
- Porous concrete;
- Native landscaping enhanced through the routing of runoff through these areas;
- Rain gardens;
- Native-vegetated drainage swales for the movement and temporary storage of runoff;

- Vegetated filter strips that slow runoff speed, trap sediment and pollutants, and provide additional water absorption;
- The collection and use of rooftop runoff for irrigation; and,
- Green roofs.

The application does not include information regarding Low Impact Development methodologies.

Given that the property is adjacent to Sycolin Creek, staff recommends that the applicant demonstrate that the most efficient pollutant removal BMPs will be used, that existing drainage patterns and hydrology to wetlands will be maintained, and that low impact development (LID) techniques such as bioretention and sheet flow to vegetated buffer areas will be implemented. Staff recommends stormwater treatment measures that mimic the pre-development conditions of the site, mitigate impacts to the watershed, and treat the stormwater runoff as an amenity visible to employees. The applicant should consider various site measures, such as permeable pavers, porous concrete, cisterns, planted swales, curb cuts, rain gardens, and bioretention filters adjacent to impervious areas, to promote infiltration on-site, minimize peak storm flows, and help filter non-point source pollutants. Pipe installation should be minimized.

Quarry Compatibility

Properties to the east of the site have been proposed as future quarry expansion areas for the Luck Stone Quarry (ZMAP 2009-0003, Luck Stone Quarry). One of the parcels has also been proposed for a co-located water treatment plant (ZMAP 2009-0004, Loudoun Water and Luck Stone Quarry). Expansion of the Luck Stone quarry into several nearby parcels was most recently approved in 1991 and 2001 (SPEX 1990-0019, Luck Stone Corporation and ZMAP 1999-0004 & SPEX 1999-0006, Luck Stone Leesburg Plant).

The Plan recognizes that crushed-stone quarries that extract diabase are a substantial economic resource in the County (*Revised General Plan, Chapter 5, Mineral Resource Extraction Areas, text*). The Plan states that the Luck Stone Quarry will be protected from incompatible uses by ensuring that encroaching new development will not hinder the quarry operation (*Revised General Plan, Chapter 8, Community Design Policies, Community Design Policy 26*). For instance, the County will encourage buffers and compatible uses on adjacent tracts as well as adequate transportation routes (*Revised General Plan, Chapter 5, Mineral Resource Extraction Areas, text*).

The County uses a Quarry Notification Overlay District to protect quarries and the extractive industry, which extends 3,000 feet from any existing quarry (*Revised General Plan, Chapter 8, General Policies, General Policy 7*). The Special Exception area is

located within the quarry overlay district. Disclosure is the primary means to inform adjacent property owners of the presence of extractive operations and to ensure compatibility between uses. Effects from blasting and other extractive operations could include noise, vibration, fugitive dust, exhaust fumes, and slow-moving heavy truck traffic.

Staff recommends that the applicant explore the scope and the scale of existing and future quarry operations to ensure that the proposed power plant is compatible with these operations, including blasting and the associated air and ground vibration.

Streetscape & Land Use Arrangement

Major arterials and collector roads servicing non-residential uses will be designed to merge as far as possible with the natural landscape and not develop as the dominant feature of the landscape. These roads will develop as boulevards, with sufficient landscaping and tree plantings on either side (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3c*). Non-residential uses will also front these major arterial or collector roads (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3c*).

With the exception of a potential emergency access connection from Gant Lane, the power plant does not have access to a public right-of-way. The applicant proposes two access points onto Sycolin Road for the larger Stonewall Business Park and a rudimentary internal road network that connects in two places to the Special Exception area. The ultimate location and condition of the roads surrounding the larger Stonewall Business Park are not depicted on the plat. The applicant has not explained how the proposed power plant would access Sycolin Road if the Business Park is not approved and developed prior to the development of the power plant.

Staff recommends that the applicant provide further information regarding access to the proposed power plant from Sycolin Road, including the disposition of roads within the Stonewall Business Park and external roadways.

Building Scale & Form

Non-residential uses will be developed at a scale that allows them to blend effectively (visually and spatially) into a rural landscape (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3a*). Within the Transition Policy Area, individual buildings of non-residential development along collector roads will not be greater than 40 feet in height and 150 feet in length. Building heights will relate to the surrounding landscape and heights of adjacent structures. Building heights can be stepped to relate to adjoining structures (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3b*).

The scale and the volume of the primary built mass and accessory elements should not dominate over the natural landscape. Buildings should be shielded from the road using such items as natural landscaping and earthen berms. Developments will be sensitive to the use of glass and night lighting. These building elements will be buffered from access roads (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3c*). Additionally, continuous plane building surfaces will be avoided. Homogeneous surfaces shall not exceed a linear distance of 20 feet especially when they front public access roads, such as major arterial or collector roads. Such surfaces will be broken into smaller segments through fenestration and setbacks (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3c*).

Staff notes that the Revised General Plan encourages the incorporation of indigenous vegetation into the landscape (*Revised General Plan, Chapter 5, Plant and Wildlife Habitats Policies, Plant and Wildlife Habitats Policy 7*), which can help buildings to blend into the surrounding landscape. Overall, landscaped areas screen and soften views of buildings from roads, enhance the visual quality of the project, provide employees with open space, mitigate environmental effects, allow the incorporation of indigenous vegetation into the project, and provide habitat for wildlife.

The applicant has provided a plan view with possible locations for various power plant facilities. The applicant has not provided information regarding facility heights, massing, landscaping, scale, intensity of use, or design characteristics. Further, a general description and location of trees, shrubs, grasses, perennials, depressed parking areas, and/or berms to be used throughout the site would help determine whether the landscaping and buffering is adequate to help ensure compatibility with the surrounding uses and to assess the visual impact of the project. Modeled views of the proposed facilities from surrounding areas have not been provided.

Staff recommends that the applicant provide further information regarding site facilities, landscaping, scale, intensity of use, and design characteristics, to include site design and building design. Staff recommends that the applicant provide modeled views of the proposed facilities from the surrounding areas.

Staff recommends that all buildings and parking be screened and the development camouflaged behind open space with less intensity adjacent to sensitive uses, such as river and stream corridors and residences. Given the proximity of residential uses to the west of the Special Exception area, additional details are needed to determine whether the proposed use is compatible with these residences, such as plan views, cross-sections, and viewshed perspectives.

For building design, staff recommends that the applicant avoid the use of continuous plane building surfaces, wherever practicable, and break up large building segments into smaller segments through the use of fenestration and setbacks.

Noise Impacts

County policies call for accommodation of the changing technological requirements of capital-intensive technology industries, while balancing any potential harmful environmental effects on the community, such as noise (*Revised General Plan, Chapter 2, Energy and Communication Policies, Energy and Communication Policy 5*).

Noise-sensitive uses surrounding the project site include residences to the west, park lands to the north, and surrounding areas zoned TR-10 and JLMA-20. Staff notes that Section 5-1507 of the Zoning Ordinance contains regulations regarding noise levels. The applicant has not provided information regarding the expected noise generation of uses within the site.

Staff recommends that a noise analysis be conducted and provided to the County documenting the predicted cumulative noise impact of all on-site activities on the surrounding residential uses and other areas zoned TR-10 and JLMA-20. The applicant should provide information regarding the location, number, noise levels, testing, and expected use of facilities on the site.

Lighting & Signage

County policies call for appropriate lighting to achieve the following:

- Promote the use of lighting for convenience and safety without the nuisance associated with light pollution;
- Promote a glare-free environment through proper lighting performance standards to improve visibility and enhance public safety;
- Promote appropriate lighting standards to conserve energy; and,
- Develop appropriate lighting standards to prohibit unnecessary and intrusive light trespass that detracts from the beauty and view of the night sky (*Revised General Plan, Chapter 5, Lighting and Night Sky Policies, Lighting and Night Sky Policy 1*).

Additionally, signage will be scaled and designed to be compatible with the surrounding landscape (*Revised General Plan, Chapter 11, Transition Policy Area Design Guidelines, Design Guideline 3c*).

The applicant did not provide information regarding lighting or signage. Lighting and signage are especially important given the project's proximity to residences and the character of the area as a low-density part of the Transition Policy Area. Staff

anticipates that a utility plant would incorporate lighting to meet Occupational Safety and Health Administration (OSHA) requirements for smokestacks, catwalks, heat recovery units, turbines, and all buildings. Staff also notes that directional and interpretive signage within the site could alert people to the presence of sensitive natural features and historical resources.

Staff recommends that the applicant commit to lighting that is fully shielded, provides a glare-free environment, is confined to the site, and is turned off after business hours, unless required for safety or security purposes, and that illumination levels will be no greater than necessary for a light's intended purpose. All lighting should be mounted as low as practicable and designed to preclude light trespass onto adjoining properties, glare to passersby, skyglow, and deterioration of the nighttime environment. Staff recommends that the applicant provide information regarding the lighting to be used for smokestacks, catwalks, heat recovery units, turbines, and all buildings.

COMMISSION PERMIT

The County will determine the need for new public facilities and will identify suitable sites based on the Revised General Plan, appropriate area plans, land use, and growth policies (*Revised General Plan, Chapter 3, General Public Facilities Policies, General Public Facilities Policy 2*).

In accordance with the Revised 1993 Zoning Ordinance, a Commission Permit is required when a public utility or public service facility is constructed to determine if the general location, character, and extent of the proposed use are in substantial accord with the Comprehensive Plan.

Staff is unable to provide a recommendation for the Commission Permit until the other issues are resolved. Staff recommends that these issues be satisfactorily resolved so that staff can access whether the general location, character, and extent of the proposed use is in substantial accord with the Comprehensive Plan.

RECOMMENDATION

The application proposes a use unanticipated within the Lower Sycolin subarea. The applicant has not offered sufficient information to effectively assess the proposal and its impact on site resources and surrounding uses or explained why other locations in the County are unsuitable.

Staff recommends that the applicant demonstrate how the application will effect a visual and spatial transition between the Suburban and Rural Policy Areas and how the proposal is appropriate for the Lower Sycolin subarea of the Transition Policy Area with particular attention to air quality and elements of the Green Infrastructure. As a minimum, staff would expect the applicant to provide elevations, sections, building

envelopes, annotate internal resource protection areas on the plat, and describe how the design and intensity of the development effect a visual and spatial transition between the Suburban and Rural Policy Areas. Illustratives depicting facilities, buildings, and landscape details should also be provided and the application should address the relationship of the proposed uses to the nearby residences.

With regards to elements of the Green Infrastructure, staff is particularly concerned with air quality, the impact on Sycolin Creek, historic and archaeological resources, forest resources, steep slopes, moderately steep slopes, wildlife habitat, and wetlands. Some of these environmental issues could be addressed if 70 percent of the site were retained as open space, as recommended in County policies.

Staff also recommends that the applicant combine the current application with the associated Stonewall Secure Business Park (ZMAP 2008-0017, et alia).

Staff is available to meet with the applicant to discuss these issues.

cc: Julie Pastor, AICP, Planning Director
Cynthia Keegan, AICP, Program Manager (via email)

Attachment 1
Air Quality
Hybrid Energy Park at Stonewall Secure Business Park

The Clean Air Act was passed in 1970 to protect the public's health and welfare. The legislation authorized the development of comprehensive federal and state regulations to limit emissions from both stationary (industrial) and mobile sources. Four major regulatory programs affecting stationary sources were initiated: the National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs). Major amendments were added to the Clean Air Act in 1977 and 1990. The 1977 Amendments primarily concerned provisions for the Prevention of Significant Deterioration of air quality. The 1990 amendments established requirements for areas not meeting the NAAQS. These amendments established a process for evaluating air quality in each region and identifying and classifying nonattainment areas according to the severity of the air pollution problem. The Clean Air Act sets health standards for six ambient pollutants: carbon monoxide, sulfur dioxide, nitrogen oxides, ozone, lead, and particulate matter. The U.S. Environmental Protection Agency (EPA) establishes rules and regulations to implement the Clean Air Act (*Metropolitan Washington Council of Governments (MWCOG), State Implementation Plan for Fine Particulate Standards, March 7, 2008; USEPA, www.epa.gov, History of the Clean Air Act*).

The metropolitan Washington region, which includes Loudoun County, is a nonattainment area for two of the six pollutants: ground-level ozone and particulate matter (less than 2.5 microns: $PM_{2.5}$). The EPA designated the metropolitan Washington region as moderate nonattainment for ground-level ozone in April 2004 and as a nonattainment area for $PM_{2.5}$ in January 2005 (*MWCOG, State Implementation Plan for 8-Hour Ozone Standard, May 23, 2007*; *State Implementation Plan for Fine Particulate Standards, March 7, 2008*).

$PM_{2.5}$ matter consists of tiny airborne particles that result from particulate emissions; condensation of sulfates, nitrates, and organics from the gas phase; and coagulation of smaller particles. The size of the particles is directly linked to their potential for causing health problems. Fine particles less than 2.5 microns in diameter pose the greatest problems because they can lodge deep in the lungs and some may get into the bloodstream. Exposure to such particles can affect both lungs and heart. $PM_{2.5}$ pollution affects both human health and the environment, including crops and vegetation. Particulate pollution exposure is linked to a variety of health problems, including increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; decreased lung function; aggravated asthma; development of chronic bronchitis; irregular heartbeat; non-fatal heart attacks; and premature death in people with heart of lung disease (*MWCOG, State Implementation Plan for Fine Particulate Standards, March 7, 2008*). Fine particle pollution can be emitted directly or formed secondarily in the atmosphere. Secondary particulates include sulfates formed from sulfur

dioxide emissions from power plants and industrial facilities. Nitrates, another type of fine particle, are formed from emissions of nitrogen oxides from power plants, automobiles, and other combustion sources (*USEPA, www.epa.gov*).

Ground-level ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOC. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone can also reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. Ground-level ozone also damages vegetation and ecosystems. In the United States alone, ozone is responsible for an estimated $500 million in reduced crop production each year (*USEPA, www.epa.gov*).

Part C of the 1977 Amendments stipulates requirements to prevent significant deterioration of air quality and, in particular, to preserve air quality in national parks, wilderness areas, monuments, and seashores. The Amendments establish Class I, II, and III areas, where emissions of particulate matter and sulfur dioxide are to be restricted. The restrictions are most severe in Class I areas (*USEPA, www.epa.gov, Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service*). Federal land managers are charged with the direct responsibility to protect the air quality and related values (including visibility) of Class I lands and to consider, in consultation with the EPA, whether proposed industrial facilities will have an adverse impact on these values (42 USC 7475(c)). Federal lands potentially impacted by the proposed power plant include Shenandoah National Park and national forests (to include Monongahela National Forest, George Washington National Forest, and Jefferson National Forest).

On behalf of the State Air Pollution Control Board, the Air Quality Division of the Virginia Department of Environmental Quality (DEQ) is responsible for carrying out the mandates of the Virginia Air Pollution Control Law, as well as meeting Virginia's federal obligations under the Clean Air Act. DEQ regulates the emission of air pollutants from industries and facilities by issuing and ensuring compliance with permits that set limits that are protective of public health (*Virginia Department of Environmental Quality, www.deq.state.va.us*).

The Virginia Department of Environmental Quality is responsible for issuing several types of air and water permits for the construction and operation of power plants. In some cases, the permit requirements include computer analysis, or modeling, of air quality to help determine how emissions may affect the environment.

Pollutants are emitted by these plants when natural gas is burned. Nitrogen oxides are emitted in the largest amounts. Other pollutants emitted, but in lesser amounts, include carbon monoxide, particulate matter, volatile organic compounds, and sulfur dioxide.

DEQ implements regulations that limit the amount of air emissions a plant is allowed to release. DEQ also regulates any direct water discharges that result from a new plant. DEQ is not

authorized to make decisions concerning zoning, aesthetics, the need for a power plant, or the level of noise that may be caused by the plant.

When a permit application is submitted for a plant, an air quality modeling analysis is required. This analysis determines the impact the plant will have on the air, and, thus the potential impacts on people living around the facility.

Before receiving a permit from DEQ, the plant must complete a form, signed by the local zoning authority, stating that the proposal is consistent with local zoning requirements (*DEQ, www.deq.state.va.us*).

Based on discussions with DEQ staff of the Northern Regional Office, it is County staff's understanding that the applicant should coordinate with DEQ's Northern Regional Office regarding permits for the proposed power plant. The applicant will be required to complete various air quality permit applications, including New Source Review (NSR) and Prevention of Significant Deterioration (PSD). PSD regulations ensure that there is no significant worsening of the air quality. The applicant will need to address NAAQS for particulate pollution, ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides, and lead. The applicant will also need to address formaldehyde and various greenhouse gases, including ammonia, carbon dioxide, and methane. Due to the interrelationship between the power plant and the remainder of the uses proposed for the Stonewall site, the entire site may need to undergo an air permit review. Within 12 months of starting operation of the plant, the applicant would also be required to apply for a federal operating permit, administered through DEQ. Stack testing should also be anticipated. The applicant may also need to coordinate with the land managers of the National Park Service for Shenandoah National Park and the US Forest Service to evaluate impacts to the air quality of the Park and national forests (Monongahela, George Washington, and Jefferson), respectively (*Meeting with DEQ staff, Northern Virginia Regional Office, Woodbridge, VA, May 22, 2009*).

COUNTY OF LOUDOUN

DEPARTMENT OF BUILDING AND DEVELOPMENT

ZONING ADMINISTRATION REFERRAL

DATE: November 4, 2009

TO: Judi Birkitt, Project Manager, Department of Planning

THROUGH: Marilee L. Seigfried, Deputy Zoning Administrator

FROM: Amy Lohr, Planner, Zoning Administration

CASE NUMBER AND NAME: ZMAP 2009-0005/SPEX 2009-0009/CMPT 2009-0001, Green Energy Partners/Stonewall (GEP/S) Hybrid Energy Park

TAX MAP/PARCEL NUMBER (PIN): 60/38 (193-38-4362), 60/38A (193-49-0539), 61/12 (193-39-3665), 61/14 (193-29-6778), and portion of 60/39 (194-48-6020)

Staff has reviewed the referenced **rezoning (ZMAP), special exception (SPEX),** and **commission permit (CMPT)** applications to include the materials identified on the transmittal sheet dated September 8, 2009. This is the first submission of ZMAP 2009-0005 and the second submissions of SPEX 2009-0009 and CMPT 2009-0001. First referral zoning comments (due May 3, 2009) were deferred to second submission on the SPEX/CMPT because the applicant informed staff on May 28, 2009 that the Mineral Resource-Heavy Industry (MR-HI) district would be requested instead of the Planned Development-General Industry (PD-GI) district.

Parcels 60/38A, 60/41, and 61/14 are currently zoned Transitional Residential-10 (TR-10). Parcels 60/38 and 61/12 are split-zoned TR-10 and Joint Land Management Area-20 (JLMA-20). All parcels are subject to the Revised 1993 Loudoun County Zoning Ordinance.

The applicant proposes to rezone approximately 90.5 acres to the MR-HI zoning district. The applicant also seeks special exception and commission permit approval for a utility generating plant and transmission facility per Sections 3-1004(AA) and 6-1101(A). The following issues have been identified.

A. CRITICAL ISSUES

1. **Section 3-1002, Size and Location.** The minimum district size for a new MR-HI district is 600 acres. Contiguous additions of not less than 10 acres are allowed when approved pursuant to Section 6-1200. The proposed district is 90.5 acres and is not currently contiguous to an existing MR-HI zone. Therefore, the proposal does not currently meet Section 3-1002. An active rezoning application (ZMAP 2009-0003, Luck Stone Quarry) abuts the subject ZMAP and proposes rezoning to the MR-HI

district. If ZMAP 2009-0003 is approved, this application could be considered a contiguous addition to ZMAP 2009-0003. At this time, the subject rezoning is contingent upon the approval of ZMAP 2009-0003.

2. **Section 3-1005, Yards.** No structure or use shall be located within 50 feet of any property line. The 50-foot yard is not correctly depicted in the plan set. First, in the northwest corner of the site on parcel 60/38, the yard line is labeled as 50 feet, but measures less than 50 feet in some areas. Second, along the northeast corner of the site on parcel 61/12, a yard is labeled as 50 feet, but measures more than 50 feet from Gant Lane. Further, in the northeast corner of this parcel, a 50-foot yard should be shown from the property line, abutting parcels 60/12 and 61/10. Third, in relation to Gant Lane, the plat shows a varying property line for parcel 61/12, which in some areas is within Gant Lane. This is not consistent with County Records, which show no portion of parcel 61/12 within Gant Lane. Ensure that all property lines are accurately depicted on all sheets in the plan set. Finally, to meet this section, the applicant will need to consolidate the parcels to eliminate the internal lot lines. While this is noted on sheet 4, staff suggests this be made a condition of approval for the special exception.

3. **Section 3-1006(B), Building Height.** The maximum height for all buildings is 40 feet. Per sheet 4, the proposed cooling tower, combustion turbines, steam turbine and water treatment system and tanks all exceed the maximum height. Upon review of the typical plant layouts on sheet 5, these uses do not appear to be exempt under Section 1-103(D)(2), especially in the case of the enclosed facility. Unless the applicant can provide additional information to demonstrate that all structures are exempted by Section 1-103(D)(2), staff recommends the applicant seek rezoning to the PD-GI district, wherein building heights can be modified pursuant to Section 6-1504.

B. OTHER ISSUES

1. **Section 6-1211(E)(1) -** *Whether the proposed zoning district classification is consistent with the Comprehensive Plan.* The majority of the site (97%) is planned for transition land use, with very minimal acreages planned for business and keynote employment land uses. Zoning staff defers to Community Planning for comment on consistency with the Revised General Plan.

2. **Section 6-1211(E)(2)** - *Whether* ***there are any changed or changing conditions in the area affected that make the proposed rezoning appropriate.*** **The rezoning is not permitted or appropriate until contiguous land is zoned MR-HI.**

3. **Section 6-1211(E)(3)** - *Whether* ***the range of uses in the proposed zoning district classification are compatible with the uses permitted on other property in the immediate vicinity.*** **The range of uses permitted in the MR-HI district is generally not compatible with the uses permitted in the surrounding TR-10 district.**

4. **Section 6-1211(E)(4)** - ***Whether adequate utility, sewer and water, transportation, school and other facilities exist or can be provided to serve the uses that would be permitted on the property if it were rezoned.*** **Staff defers to the Town of Leesburg, Loudoun Water, VDOT, and the Office of Transportation Services on these issues.**

5. **Section 6-1211(E)(6)** - *The effect of uses allowed by the proposed rezoning on the structural capacity of the soils.* According to County Records, hydric soils (types 6A, 66A, 69A, and 79A) are present in the rezoning area and the applicant has identified wetland areas. These hydric soils have a very poor potential for general development of central water and sewer. Development of the site should consider these areas with respect to grading and the construction of buildings and infrastructure.

6. **Section 6-1211(E)(8)** - *Whether a reasonably viable economic use of the subject property exists under the current zoning.* The majority of the site is currently zoned TR-10, a zoning district which is intended, among other goals, to provide for an environment that is low density in character to facilitate a transition between the suburban and rural areas of the County. The TR-10 zone not only includes residential uses, but also agricultural, public and institutional, commercial, and industrial uses. Staff maintains that the TR-10 zoning offers a reasonably viable economic use of the property at the intensity prescribed by both the Zoning Ordinance and Revised General Plan.

7. **Section 6-1211(E)(9)** - ***The effect of the proposed rezoning on the environment or natural features, wildlife habitat, vegetation, water quality and air quality.*** **Sheet 4 includes a "tree save and replanting area (±516,000 SF)" and proffer 8. provides for preservation of healthy trees within the area, except for stormwater management and utilities. Staff urges further coordination with the County Urban Forester on proffer 8. to ensure the tree save and replanting area language is suitable.** Staff defers to the Environmental Review Team (ERT) for further comment on the impact to the environment or natural features, wildlife habitat, vegetation, water quality and air quality.

8. **Section 6-1211(E)(10)** - ***Whether the proposed rezoning encourages economic development activities in areas designated by the Comprehensive Plan and provides desirable employment and enlarges the tax base.*** **The proposed rezoning is not in an area designated for industrial development.**

9. **Section 6-1211(E)(13)** - ***Whether the proposed rezoning encourages the conservation of properties and their values and the encouragement of the most appropriate use of land throughout the County.*** See comments B.1. and B.8. above.

10. **Section 6-1211(E)(14)** - ***Whether the proposed rezoning considers trends of growth or changes, employment, and economic factors, the need for housing, probable future economic and population growth of the county and the capacity of existing and/or planned public facilities and infrastructure.*** While Luck Stone Corporation owns abutting properties, the surrounding land use has not changed. The properties remain zoned TR-10 and are not approved for stone quarrying.

11. **Section 6-1211(E)(16)** - ***The effect of the rezoning on natural, scenic, archaeological, or historic features of significant importance.*** Staff defers to the ERT and Community Planning for comment on the impact to natural, scenic, archaeological, or historic features.

12. **Section 6-1310(A)** - *Whether the proposed special exception is consistent with the Comprehensive Plan.* See comment B.1. above.

13. **Section 6-1310(C)** - ***Whether the level and impact of any noise emanating from the site, including that generated by the proposed use, negatively impacts the uses in the immediate area.*** The statement of justification (p. viii) indicates that noise emanating from the Hybrid Energy Park will meet the requirements of the Zoning Ordinance. Staff questions the anticipated noise level at the MR-HI district boundary, given the use of combustion and steam turbines. Staff suggests that specific noise attenuation measures be developed and evaluated during the special exception process so that effective conditions can be applied to the site to avoid negative impacts to adjacent uses.

14. **Section 6-1310(D)** - *Whether the* ***glare or light that may be generated by the proposed use negatively impacts uses in the immediate area.*** Given the 75 and 100-foot heights proposed, staff questions how visible light will be from adjacent properties. Per Section 6-1504, lighting for the site shall not cause illumination in excess of 0.25 foot candles above background light levels, measured at the boundary of the industrial use and the abutting residential use and/or residential district. The applicant will need to demonstrate compliance with the light and glare standards of the Ordinance at the time of site plan.

15. **Section 6-1310(E)** - ***Whether the proposed use is compatible with other existing or proposed uses in the neighborhood, and adjacent parcels.*** Adjacent parcels to the west contain residential uses and the planned Phillip A. Bolen Memorial Park will be located north of the site, across Cochran Mill Road. The proposed use is generally not compatible with these existing and proposed uses in the area.

16. **Section 6-1310(F)** - ***Whether sufficient existing or proposed landscaping, screening and buffering on the site and in the neighborhood to adequately screen surrounding uses.*** The statement of justification (p. ix) indicates that the topography of the area make the Hybrid Energy Park less visible from the surrounding area. Given the 75 and 100-foot heights proposed, it would seem that the use will be visible from surrounding parcels, despite the buffering and screening proposed. Staff suggests the applicant provide photo simulations depicting the Hybrid Energy Park from surrounding parcels to demonstrate the degree of buffering and screening.

17. **Section 6-1310(H)** - ***Whether the proposed special exception will damage existing animal habitat, vegetation, water quality (including groundwater) or air quality.*** Staff recommends further review of air quality issues with the Department of Environmental Quality and the ERT. Also see comment B.7. above regarding vegetation.

18. **Section 6-1310(L)** - ***Whether the proposed special exception will be served adequately by essential public facilities and services.*** **The statement of justification simply states that the use will be adequately served. The applicant needs to expand the response to this consideration and provide greater detail how the proposed use will be served by essential public facilities and services.**

19. **Section 6-1310(N)** - ***Whether the proposed use will affect the structural capacity of the soils.***
See comment B.5. above.

20. **Section 6-1310(P)** - ***Whether the proposed special exception use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.*** See comment B.8. above.

21. **Section 3-1001, Purpose.** Per the district purpose, the MR-HI zone is established, in part, to collocate quarries with compatible heavy industrial uses. The area of the proposed rezoning is within the existing Quarry Notification (QN) Overlay District and is adjacent to a proposed rezoning/special exception (**ZMAP 2009-0003/**SPEX 2009-0027) to expand the Luck Stone quarry. However, at the present time, the proposed MR-HI zone is generally not compatible with the surrounding JLMA-20 and TR-10 zones. Should ZMAP 2009-0003/SPEX 2009-0027 be approved, the use of this property for heavy industrial uses would be more consistent with the district purpose. The appropriateness of the proposed rezoning relies heavily upon the proposed zoning and land use of the adjacent Luck Stone properties. Also see comment A.1. above.

22. **Section 3-1002, Size and Location.** The MR-HI district is to be established in areas contemplated as appropriate for resource extraction use in the Comprehensive Plan. The majority of the site is planned for transition land use. Zoning staff defers to Community Planning for further comment regarding consistency with the Revised General Plan.

23. **Section 3-1006(B), Building Height.** In the key on sheet 4 and in the drawings, building heights are noted as "±" and "Approx." Therefore, it is not clear how much the actual height could vary from the figures indicated. In addition, heights are not indicated for every component listed in the key. Indicate a maximum height for each structure listed and delete the "±" and "Approx." notations from the key and drawings. In addition, the noted height for the guard house/secured entrance is "40' approx. height." Staff questions why this structure would be so tall. Review the stated height for accuracy. Finally, a note on sheet 4 states: "*Stack heights proposed not to exceed elevation of transmission towers (elevation 506.5)." This is confusing as no "stacks" are listed in the key. Clarify what stack heights are being referenced. Additionally, if the note is referencing existing elevation, it would seem simpler to note the height of the stack. Please revise/clarify all these matters.

24. **Section 3-1007(D), Utility Requirements.** All utility distribution lines shall be placed underground. Please provide a note to this effect on sheet 2.

25. **Section 1-103(D), Exemptions (2).** The height limitations of the Ordinance do not apply to water storage tanks. However, the tank shall be located no less than the distance of its height from all lot lines. Water Storage Tanks 1 and 2 are approximately 75 feet tall, but are within 50 feet of a lot line. Additionally, a tank of 100 feet in height is closer than 100 feet to a property line (#18). These tanks need to be relocated, so that they are at least the distance of their height from all lot lines.

26. **Section 4-1500, Floodplain Overlay District.** Road crossings are permitted in the major floodplain, subject to Section 4-1508, Alterations. Improvements to Gant Lane will likely require a floodplain alteration. Staff also notes that adherence to the "50-foot Rivers and Stream Corridor Resources Management Buffer" should be proffered, as the Zoning Ordinance does not contain this requirement.

27. **Section 5-616, Utility Substations.** All utility substations shall be located in areas consistent with the adopted Comprehensive Plan.

28. **Section 5-621, Public Utilities.** The utility generating plant shall meet the requirements of Section 5-621. In the zoning requirements table on sheet 2, under landscaping requirements, also reference Section 5-621.

29. **5-1407(A), Location.** Buffer yards shall be located along the perimeter of a lot or parcel. Where a parcel extends into the center line of an existing road. The buffer yard shall begin at and extend inward from the ultimate right-of-way line of said road. Ensure that the buffer yard abutting Gant Lane is shown in accordance with this section.

30. **Section 5-1508, Steep Slope Standards.** Development on moderately steep slope areas is subject Section 5-1508(F). Update note 3 on sheet 2 to indicate compliance with Section 5-1508.

31. **Section 6-1313, Period of Validity.** The Ordinance specifies a period of validity of 5 years from the date of special exception approval. Given the additional State and Federal approvals required, staff suggests a longer period of validity be considered as part of this special exception application.

C. PROFFER STATEMENT AND CONDITIONS OF APPROVAL

The following comments are provided for the draft proffer statement dated August 20, 2009:

1. In the first paragraph, line 13, please change the word "Industrial" to "Industry" to be consistent with the Zoning Ordinance.
2. In proffer 1., line 2, staff suggests the phrase "Concept Development Plan" be changed to "Concept Plan" or "Rezoning Plat" to be consistent with the plan set.
3. In proffer 1., line 5, please insert quotation marks following "2009-0001," to denote the end of the plat title. (Quotation marks are used in line 2 at the beginning of the plat title).

4. In proffer 1., line 6, staff suggests inserting a comma following "2009".
5. In proffer 1., line 12, delete the words "as amended." Amendments to the MR-HI Zoning District are not permitted.
6. In proffer 1., line 13, staff suggests "utility generating plant or transmission facility" be changed to "utility generating plant and transmission facility." This would be consistent with the statement of justification (p. 1) and proffer 6.
7. In regard to proffer 2., the first sentence indicates that the property *may* be served by public water and sanitary sewer. However, the Health Department has not evaluated the project for on-site well and/or septic because the applicant indicated use of public water and sewer. Therefore, it would seem that public water and sewer should be proffered. Otherwise, information should be provided to the Health Department so that the project can be evaluated for on-site services.
8. In regard to proffer 5., staff suggests the ultimate 50-foot right-of-way be shown on the Concept Plan.
9. In further regard to proffer 5., staff suggests a commitment to dedicate right-of-way necessary for future Cochran Mill Road, when requested by the County, and that the planned alignment be shown on the Concept Plan.
10. In regard to proffer 8., the "Tree Save Area" shown on the Concept Plan is labeled "±573,000" square feet. However, this area measures approximately 68,000 square feet. Please revise the figures on sheet 4 accordingly. Also, a symbol for the tree save areas should be included in the legend.
11. In regard to proffer 10., staff notes that the lighting specifications of this paragraph would apply to any use developed on the property, not just the requested special exception use. Nonetheless, all lighting will need to conform to the Zoning Ordinance and FSM. Therefore, the phrase "unless otherwise required for security and safety" should be deleted or revised, so that it is clear that Zoning Ordinance and FSM requirements will be met.
12. Proffer 12. seems to relate directly to the special exception use and is repeated in Condition 4. Therefore, staff suggests deleting proffer 12.
13. Staff suggests the inclusion of a proffer addressing treatment/preservation of the archaeological sites.

The following comments are provided for the draft conditions of approval dated August 20, 2009:

14. In condition 2., beginning in line 1, it is unclear who or what is meant by the phrase, "or their designated representatives that meet state and federal security requirements." Staff suggests this be clarified.
15. In condition 2., line 3, rather than the phrase "reasonable time" staff suggests a specific time of notice be specified.
16. In condition 4., line 3, staff suggests a specific County agency be named in the approval of the Emergency Preparedness Plan.
17. In condition 4, line 3, staff suggests the word "reasonably" be removed, as this term is rather subjective.
18. In condition 4., line 5, staff suggests "issuance of the first occupancy permit" be changed to "first site plan approval."

19. Condition 6. mirrors Ordinance requirements. Therefore, staff suggests it be removed. If standards more stringent than the Ordinance are proposed, they should be included as conditions.
20. Condition 9. seems to be in conflict with Chapter 654 of the Codified Ordinance of Loudoun County, which prohibits unreasonable noise. Further, it is unclear why construction would be taking place on site during these hours and why the noise level specified is higher than allowed during the day. 70 dBA at night is not acceptable. Staff suggests this condition be deleted, or otherwise revised.
21. In condition 11., line 2, please insert the word "Services" following "Transportation."
22. In further regard to condition 11., it would seem that VDOT should also review any traffic management plan related to Gant Lane since this is a VDOT road. VDOT would approve all construction entrances and access roads from Gant Lane during the site plan process, not the Loudoun County Office of Transportation Services.

D. PLAT NOTES/MISCELLANEOUS

1. The County is considering amendments to adopt a Chesapeake Bay Preservation Ordinance. Please be advised that the subject site may be impacted by these amendments.
2. A "Typical Details and Illustratives Exhibit" (sheet 1 of 1) is attached to the plan set. Staff urges the applicant to commit to either the enclosed or non-enclosed facility, so that the project can be evaluated from that standpoint.
3. On sheet 2, several of the notes make reference to a "zoning tabulations table" but no such table appears on sheet 2. Revise the notes accordingly.
4. On sheet 2, in note 3 of the Concept Plan notes, there is a grammatical error. Please revise.
5. On sheet 2, ensure that the "Rezoning Plat" accurately reflects the property boundaries. As shown, the boundaries are not consistent with County Records. In addition, the rezoning plat should be provided at a larger scale for mapping purposes.
6. On sheet 2, in the "Overall MR-HI Site Density Tabulation," change the column "Net Area for Averaging FAR" to "Net Area." There is no FAR averaging in the MR-HI district.
7. On sheet 2, in the "Overall MR-HI Site Density Tabulation," delete the word "office" from all columns. Office is not a permitted principal use in the district.
8. On sheet 2, in the "Overall MR-HI Site Density Tabulation," the figure of 3,564,514.8 is not correct. It should be 2,672,406.
9. On sheet 2, review the note under "phasing plan." It contains an incomplete sentence.
10. On sheet 2, the open space percentage listed in the "Overall MR-HI Site Density Tabulation" varies from the figure in the "Open Space Table." Please resolve this discrepancy.
11. On sheet 4, note 1 regarding the final location of uses is too subjective and should be removed. Site development will need to be in substantial conformance with the Concept Plan.

DEPARTMENT OF BUILDING AND DEVELOPMENT

COUNTY OF LOUDOUN

MEMORANDUM

DATE: October 23, 2009

TO: Judi Birkitt, Department of Planning

FROM: William Marsh, Environmental Review Team Leader

CC: Amy Lohr, Zoning Planner
Joe Gorney, Department of Planning
Steve Hargan, Economic Development
Alex Blackburn, Building and Development

SUBJECT: ZMAP-2009-0005, SPEX-2009-0009, CMPT-2009-0001 Green Energy Partners (formerly Stonewall Secure Business Park, Hybrid Energy Center)

The Environmental Review Team (ERT) met to discuss this case on October 5, 2009, with a follow up field visit to an electrical generation plan in Fluvanna County similar to the proposed use on October 15, 2009. ERT offers the following comments:

1. Given the need for a level operating surface and that much of the site is located on land with slopes close to 10 percent, staff is concerned about the proximity of combined cycle support structures to areas of very steep slopes. Because Section 5-1508 of the Revised 1993 Zoning Ordinance prohibits disturbance of very steep slopes, staff requests further verification that very steep slopes remain undisturbed.

2. Please verify the treatment approach for condensate runoff from the cooling tower, including how bio-cides and possible chlorine remnants from Town of Leesburg water will be treated. Although the application indicates that most cooling tower water is vaporized, some condensate may remain and could become runoff.

3. Energy and Communication Policy 4 allows location of electric generation facilities "only where their impact on the surrounding land uses and the environment is compatible." (RGP page 2-23) Recent benthic surveys (using Save our Streams protocol) of Sycolin Creek just downstream of the Gant Road indicate that the stream is consistently at the acceptable level and frequently at the highest level for benthic scores. The applicant's packet also confirms the presence of wood turtle, a threatened species that relies on high water quality and large forest resources adjacent to the stream. Staff provides the following

recommendations for water quality treatment and monitoring to help verify that runoff from the proposed use is compatible with the current benthic environment of Sycolin Creek, even if said recommendations exceed minimum state requirements for the proposed use:

- Storm runoff from all impervious surfaces on site will be treated by best management practices that achieve the highest pollutant removal efficiency rating recognized by the Department of Conservation and Recreation.
- Water flow temperature leaving the site is compatible with Sycolin Creek flow temperature throughout the year. Staff notes that a combined cycle plant in Fluvanna County achieves this standard by conveying plant runoff through two chillers before entering the stormwater pond.
- A permanent stream monitoring gage for Sycolin Creek will be installed as part of this application. The Sycolin Creek monitoring station will record the average flow, temperature, pH, conductivity and turbidity every 15 minutes. The monitoring station will be installed prior to site development and will be maintained for 10 years following project completion, after which the County will have the option to continue with the maintenance and monitoring of the station. The monitoring station will be located in Sycolin Creek immediately downstream of the plant outfall location.
- The flow, temperature, pH, conductivity and turbidity from the drainage leaving the plant will also be monitoring on a weekly basis.
- At both locations, water quality samples will be collected and analyzed for TDS, TSS, Total Nitrogen and Total Phosphorus on a monthly basis. One half of these samples will be collected following a period where the site received at least 0.5" of rain in a 48 hours period.
- Collaboration with Luck Stone may enable co-location of stream flow gage that would help meet requirements for the quarry expansion. Any Gant Lane improvements needed for construction traffic may provide an opportunity for a geometrically controlled stream crossing making flow measurement more convenient (provided ZO Section 4-1500 is also met.)

4. Staff recommends proactive steps that isolate and shield noise sources on site such that noise levels approach RGP recommendations for ambient noise of surrounding uses, as well as meeting ZO noise requirements. Staff suggests the RGP noise policies for highway noise because power plant noise can be a persistent noise source similar to highway noise, described on page 5-45 of the RGP. Constant measurement of noise levels at strategic locations on the site is also recommended to verify noise levels, including during construction. Specific suggestions follow:

   - Provide noise shields for any emergency gas release valves. A retrofit for the release valve was performed at the Fluvanna County facility after initial use. Also consider noise abatement at junctures where pressurized steam could be released into the air.

- Verify whether peaker and combined cycle facilities are enclosed or in open air. This is not specified with this application.
- Consider attenuating noise sources to help achieve a 57 dB(A)Leq(h) or lower level adjacent to Philip Bolen Park, as verified by a noise model. Bolen Park includes trail use and natural areas along Sycolin Creek that meet the description of "lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose."

Noise complaints have been a chronic concern for Fluvanna County facility operators, even though the special use permit was approved with noise requirements at the property lines while also having more open space than this project. The preceding recommendations are meant to apply "lessons learned" from the Fluvanna project to minimize future noise concerns.

5. Because DEQ air quality permitting requirements are less rigorous and can be completed more quickly for solar photovoltaic generation than for combined cycle generation, staff recommends deployment and activation of the 1-Megawatt solar array prior to completing construction of the combined cycle plant. Adding generating capacity as soon as allowable by the DEQ and relevant utilities will better meet RGP Energy and Communications Facilities language encouraging "timely delivery" of electricity to county residents and businesses (page 2-23.)

6. Staff emphasizes the importance of mitigating wetland and stream impacts close to the impact area to help maintain water quality and flood protection functions, as well as habitat. As such, for any necessary mitigation, staff recommends that the applicant commit to prioritizing mitigation as follows: 1) onsite, 2) within the Sycolin Run Watershed within the same Planning Policy Area, 3) within the Sycolin Creek Watershed outside the Planning Policy Area, and 4) Loudoun County, subject to approval by the Corps and the Virginia Department of Environmental Quality (DEQ). This approach is consistent with Policy 23 on Page 5-11 of the RGP which states that "the County will support the federal goal of no net loss to wetlands in the County." Furthermore, the County's strategy is to protect its existing green infrastructure elements and to recapture elements where possible [RGP, Page 6-8, Green Infrastructure Text].

7. Staff acknowledges depictions of tree conservation areas on site but cautions that some of this area may be lost to a relocated Cochran Mill Road per the Countywide Transportation Plan. For clarity, staff recommends that the general alignment be depicted on concept development plan. Staff further recommends enlarging the tree conservation area to open space west of the power plant and draining to Sycolin Creek.

8. Staff recommends continued outreach to Loudoun Water, LuckStone, and to the Town of Leesburg to achieve co-location of utility lines for this project and

Loudoun Water's project. Staff is also available to facilitate stakeholder meetings related to this recommendation.

Staff is available to answer any questions.

DEPARTMENT OF BUILDING AND DEVELOPMENT

COUNTY OF LOUDOUN

MEMORANDUM

DATE: May 21, 2009

TO: Amy Lohr, Zoning Planner

FROM: William Marsh, Environmental Review Team Leader

CC: Judi Birkitt, Department of Planning
Joe Gorney, Department of Planning
Steve Hargan, Economic Development

SUBJECT: SPEX-2009-0009 and CMPT-2009-0001 Stonewall Secure Business Park, Hybrid Energy Center

The Environmental Review Team (ERT) met to discuss this case on April 6, 2009, with a follow up field visit on April 8, 2009. ERT offers the following comments:

Issues related to the Zoning Ordinance (ZO) and Facilities Standards Manual (FSM):

1. ERT has provided various water quality, tree conservation, and steep slope preservation recommendations on the related rezoning application, related to ZO Sections 6-1310(H). While these comments apply in general to this application, staff provides the following water quality recommendations related to the proposed uses:

   - Stormwater and any process water leaving the site and entering Sycolin Creek should not change the temperature of Sycolin Creek, in order to protect existing plant and animal species. Staff recommends a commitment to monitor and treat water discharges to not damage Sycolin Creek.

   - Chapter 5 of the FSM recognizes water quality risks posed by hotspot uses, including fleet storage, vehicle maintenance areas, and chemical storage. See Section 5.320.E. Staff recommends disclosure of all related uses that quality as hotspot uses and commitments to treatment of these uses as part of the special exception approval.

   - Staff recommends depicting wetlands and waters of the United States as approved by Jurisdictional Determination number 05-R2064, dated November 18, 2005. This includes distinguishing between perennial, intermittent and ephemeral streams. Please be advised that Loudoun County is considering adoption of a Chesapeake Bay Preservation Act, including the requirement of

a 100-foot buffer adjacent to all perennial streams, water bodies, and wetlands contiguous to perennial streams and water bodies.

2. Noise effects related to this application need to be clearly understood, consistent with ZO Section 6-1310(C). Staff recommends the submittal of a noise analysis that accounts for the combined effects of base load energy generation, peak energy generation, and any emergency generation requirements, in addition to noise emanating from the related uses proposed with the rezoning application.

3. ZO Section 6-1310(H) also requires consideration of air quality, where Loudoun County is included in a non-attainment area of the Clean Air Act due to ozone pollution. Natural gas facilities emit Nitrous Oxide, Carbon Monoxide, Particulate Matter, Volatile Organic Compounds, and Sulfur Dioxide, all of which contribute to ozone pollution. Staff recommends further explanation of measurements and remediation required by this application to mitigate these pollutants, including but not limited to "Prevention of Significant Deterioration" permits, air quality modeling analysis, and technologies like selective catalytic reduction.

Issues related to the Revised General Plan:

4. The proposal to extend treated, sanitary effluent from the Town of Leesburg treatment facility coincides with a Loudoun Water-proposed intake to the Potomac River that will be piped, stored, and be treated close proximity to the Stonewall site. Staff notes that two uncoordinated pipe networks can disturb natural areas. Consistent with General Water and Wastewater Policy 12 and Energy and Communication Policy 1 of the RGP, staff recommends co-location of any Stonewall lines with proposed Loudoun Water lines. Staff also recommends consideration of combined water conveyance, so that only pipe network for the Stonewall and Loudoun Water projects is needed.

5. Staff has recommended tree preservation with the related ZMAP application. Staff furthers this recommendation for preserving tree stands adjacent to the power system as a visual buffer, consistent with Energy and Communication Policy 2.

6. The applicant's statement of justification describes an increasing demand for energy in the region and the energy efficiency gains associated with producing electrical supply in close proximity to the demand. Electricity produced by this project that is available to the grid assists the RGP's stated goal of supporting "timely delivery of these services to businesses and households as development occurs…" (page 2-23) To verify this potential benefit, staff recommends that the Planning Commission receive a verifiable calculation of the difference between the energy produced by this application and the energy required by the project's special exceptions and related rezoning applications.

7. Besides energy efficiency gains, the statement of justification recognizes the environmental benefits of more energy efficient production of electricity from combined cycle natural gas turbines and from solar photovoltaic generation. The RGP does not prioritize one form of energy production over another, and thus does not compare environmental effects of electricity generation from coal, nuclear, natural gas, solar, and other resources. Further, the RGP does not encourage this land use type in the transition area, as described in the Community Planning referral. Finally, the RGP does commit to "developing and implementing a comprehensive utilities plan to address the impacts and location requirements of energy and communications facilities." (p.2-24) To date, this plan has not been pursued. Based on these factors, ERT recommends consideration of an RGP amendment or "comprehensive utilities plan" that addresses this proposed use in the transition area while also updating the RGP to account for the relationship between climate change and the energy consumed and used in Loudoun County.

Other comments

8. Staff recommends consideration of a closed loop ground source heat pump for the proposed administration building that could be looped under the adjacent pond, to improve energy efficiency.

9. The application includes a commitment not to use fuel oil as a backup energy source, which is typically regulated by the Department of Environmental Quality (DEQ). Staff inquires into the backup fuel source to be used in lieu of oil.

County of Loudoun

Office of Transportation Services

MEMORANDUM

DATE: November 20, 2009

TO: Judi Birkitt, Project Manager, Department of Planning

FROM: George Phillips, Senior Transportation Planner GP

SUBJECT: **ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001- Green Energy Partners/Stonewall (GEP/S) Hybrid Energy Park Second Referral**

LOCATION: North side of the Dulles Greenway (Route 267), west of Goose Creek, east of Sycolin Road (Route 643) and south of Cochran Mill Road (Route 653) and Gant Lane (Route 652) (***Attachment 1***)

Background

The subject applications seek rezoning, special exception and commission permit approval to allow a utility generating plant and transmission facility on portions of five parcels totaling approximately 90.5 acres. The rezoning is proposed from the TR-10 (Transitional Residential) zoning district to MR-HI (Mineral Resource-Heavy Industry) zoning district. These applications were initially submitted as part of the Stonewall Secure Business Park/Hybrid Energy Park and were reviewed collectively by the Office of Transportation Services (OTS) with comments dated April 29, 2009; the subject applications have subsequently been separated out to proceed independently[1].

This referral updates the status of the Hybrid Energy Park applications and is based on materials received from the Department of Planning on September 4, 2009, including (1) a response letter from the applicant's representative, dated August 20, 2009,(2) a revised statement of justification from the applicant's representative, dated August 20, 2009, (3) draft proffers from the applicant's representative, dated August 20, 2009, (4) suggested conditions of approval from the applicant's

1. The Stonewall Secure Business Park (ZMAP 2008-0017, SPEX-0068, SPEX 2008-0069 & SPEX 2008-0070) is now a separate proposal for county review.

representative dated August 20, 2009, (5) a traffic study, dated September 3, 2009, from Patton Harris Rust, & Associates and (6) a concept plan and plat, dated July, 2009, by William H. Gordon Associates, Inc.

Existing, Planned and Programmed Transportation Facilities

The site is served by Sycolin Road (Route 643), Cochran Mill Road (Route 653), and Gant Lane (Route 652). Full discussion of existing conditions and planned improvements is provided in the first OTS referral (April 29, 2009). Since that time, it is noted that VDOT has completed its paving project along Sycolin Road (Route 643), and that roadway is now a paved two lane (R2) facility between the Leesburg Town Limits and Belmont Ridge Road (Route 659) in Ashburn.

Review of Applicant's Traffic Study

As noted above, the Applicant has submitted a new traffic study for only the Hybrid Energy Park applications; OTS staff review of this document is as follows:

Existing Traffic Volumes and Level-of-Service (LOS)

The applicant's traffic study (***Attachment 2***) provides existing peak hour traffic volumes and indicates that the unsignalized Cochran Mill Road (Route 653)/(Gant Lane)Route 652 intersection currently (2009) operates at an acceptable LOS. This includes LOS A during both peak hours for all movements. The unsignalized Sycolin Road (Route 643)/Cochran Mill Road (Route 653) intersection is also currently operating at an acceptable LOS. This includes LOS A for the southbound left-turn movement from Sycolin Road (Route 643) onto eastbound Cochran Mill Road (Route 653) during both peak hours and LOS B for the westbound left-turn movement from Cochran Mill Road (Route 653) onto southbound Sycolin Road (Route 643).

Background Traffic and Level-of-Service (LOS)

With the addition of forecast background traffic, the acceptable LOS remains unchanged at both intersections for the projected 2014 background year (***Attachment 3***).

Trip Generation Information

The applicant's traffic study estimates that the proposed energy park would generate 24 a.m. peak hour, 26 p.m. peak hour and 89 daily vehicle trips ***(Attachment 4)***. Based on the by-right TR-10 zoning, the 90.5 acre property would yield 9 single-family dwelling units. This would generate 90 daily, 16 a.m. peak hour and 12 p.m. peak hour trips. The proposed use represents an increase of 8 a.m. peak hour, 14 p.m. peak hour vehicle trips and a reduction of 1 daily vehicle trip compared to the by-right development scenario.

OTS staff notes that the source of the trip generation figures cited by the Applicant for the proposed use is not referenced in the study; additional comments on this issue are provided in Comment #2 below.

Trip Distribution

The applicant's traffic study notes that 50% of the site traffic will access the site from the east on Cochran Mill Road (Route 653) and 50% would approach from the west on Cochran Mill Road (Route 653) ***(Attachment 5).*** The 50% distributed west to Sycolin Road (Route 643) then splits with 30% to the north and 20% to the south on Sycolin Road (Route 643).

Forecasted Level-of-Service

Under total future conditions (background traffic plus site-generated traffic), the applicant's traffic study (***Attachment 6***) indicates that the unsignalized Cochran Mill Road (Route 653)/Gant Lane (Route 652) intersection will operate at an acceptable LOS for total future conditions in 2014 (LOS A during both peak hours for all movements). The unsignalized Sycolin Road (Route 643)/Cochran Mill Road (Route 653) intersection will also operate at an acceptable LOS (LOS A for the southbound left-turn movement from Sycolin Road (Route 643) onto eastbound Cochran Mill Road (Route 653) during both peak hours and LOS B for the westbound left turn movement from Cochran Mill Road (Route 653) onto southbound Sycolin Road (Route 643) during both peak hours.

Transportation Comments

The comments below relate to how the applicant has addressed the original OTS comments (April 29, 2009) when the proposed Hybrid Energy Park was included with the Stonewall Secure Business Park application. These include the original OTS comment, the applicant's response, and whether the issue has been adequately addressed.

1. **Initial Staff Comment (First Referral April 29, 2009)**: The proposed Hybrid Energy Park is tied to the overall Stonewall Secure Business Park application (ZMAP 2008-0017, SPEX 2008-0068, SPEX 2008-0069 and SPEX 2008-0070) under review by the County. As such, any recommended road improvements for the proposed Hybrid Energy Park will be included in the review of the overall Stonewall Secure Business Park. Initial OTS comments have already been released for this application.

   Applicant's Response (August 20, 2009): *The proposed Hybrid Energy Park and the Stonewall Secure Business Park have been separated into different applications with this response letter.*

   Issue Status: The initial OTS comment is no longer relevant as the applicant has now submitted the Hybrid Energy Park as a separate application. This separate application is being reviewed independently of the proposed Stonewall Secure Business Park application. This issue has been adequately addressed.

2. **Initial Staff Comment (First Referral April 29, 2009):** The applicant's revised traffic letter, dated February 25, 2009, doesn't provide a separate transportation analysis and apparently relies on the November 5, 2008 traffic study for the overall Stonewall Secure Business Park from Wells & Associates. However, please note that this study did not include

the hybrid energy park. It included more intense office and research & development land uses which generate significantly higher site traffic. The question is, does the applicant want to revise the traffic study to accurately reflect the hybrid energy park? Or is the applicant willing to utilize the existing November 5, 2008 Wells study, which has significantly higher site traffic, for determining transportation related improvements?

***Applicant's Response (August 20, 2009)**: The Hybrid Energy Park will employ approximately 25 people and will generate a total of 24 A.M. peak hour trips and a total of 26 P.M. peak hour trips and 89 average daily trips. As previously stated, the applications for the Hybrid Energy Park and the Stonewall Secure Business Park have been separated into different applications with this response letter.*

Issue Status: As noted in the background section, the applicant has submitted a separate traffic study which analyzes the Hybrid Energy Park independently from the proposed Stonewall Secure Business Park. However, the trip generation for the site needs further documentation. The Applicant should indicate its basis/source for the trip generation data included in Table 2 (page 6) of the applicant's traffic study (See *Attachment 4*).

3. **Initial Staff Comment (First Referral April 29, 2009)**:The applicant's proposed conditions of approval do not include any transportation-related improvements. How and under what format will needed transportation-related improvements, such as to Sycolin Road and Cochran Mill Road, be provided to serve the site? Please clarify.

   ***Applicant's Response (August 20, 2009)**: Since the applications have been separated, a draft Proffer Statement has been included with this letter for the Hybrid Energy Park. The Hybrid Energy Park will be accessed by Gant Lane.*

   Issue Status: The applicant has submitted draft proffers and suggested conditions with this application. However, the draft proffers (Proffer II. 4 and 5, Transportation), only specify that on-site travel ways will be constructed in accordance with the LSDO and FSM, that these travel ways will include emergency ingress and egress, and that neither Loudoun County nor VDOT will have any responsibility for maintenance and repair. For Gant Lane (Route 652), the applicant only specifies that right-of-way (ROW) dedication will be provided. No off-site construction on Gant Lane (Route 652) is mentioned which would be necessary to connect with Cochran Mill Road (Route 653). The Applicant's suggested conditions of approval (Condition 11) state that a construction traffic management plan will be submitted to OTS for review and approval. This relates to the management of temporary construction entrances and access roads which would insure that "wide load" deliveries are scheduled during off-peak times and that access routes to and from the site are planned to minimize conflicts.

   The draft proffers and suggested conditions of approval do not address the fundamental concern with the location of this facility on Gant Lane (Route 652), a narrow unpaved road, approximately 10-12 feet wide, and including a concrete bridge culvert over the Sycolin Creek with no guard rails (See Attachment 7). In order to

provide safe and adequate access to the proposed Hybrid Energy Park, as well as to the proposed Loudoun Water Treatment Plant (SPEX 2009-0021 &CMPT 2009-0007, also currently under County review) which also proposes to use Gant Lane (Route 652) for access, the Applicant should commit to construction of an improved section of Gant Lane (Route 652) south from Cochran Mill Road (Route 653) to the proposed Hybrid entrance. Both the Hybrid Energy Park and the Loudoun Water Treatment Plant will result in truck traffic along Gant Lane (Route 652). This improvement should be a paved, two-lane rural section (consistent with VDOT standards) and needs to include an improved bridge crossing over Sycolin Creek (consistent with VDOT standards). The location/alignment of an improved Gant Lane (Route 652), north of the proposed site entrance, warrants further discussion with respect to the planned CTP alignment of Cochran Mill Road (Route 653) south of Sycolin Creek and the pending Stonewall Secure Business Park applications, such that the planned alignment of Cochran Mill Road (Route 653) may serve as the bridge crossing, with a realigned Gant Lane (Route 652) intersecting Cochran Mill Road (Route 653) south of the creek (see *Attachment 8* and Comment #4 below). Further discussion and resolution of these issues is necessary.

4. **Initial Staff Comment (First Referral April 29, 2009):** The proposed concept plan does not appear to incorporate the planned realignment of Cochran Mill Road southwest through the site to Sycolin Road as a four-lane road. This includes the bridge crossing over Sycolin Creek. In addition, the applicant does not appear to provide a road connection to either Gant Lane or Cochran Mill Road. In order to fulfill the CTP road network as detailed in Appendix 1 of the CTP and better distribute site traffic, this will need to be addressed in the overall Stonewall Secure Business Park application.

   Applicant's Response (August 20, 2009): *As stated previously, the applications have been separated and the planned realignment of Cochran Mill Road does not impact the Hybrid Energy Park applications. Access to the Hybrid Energy Park will be from Gant Lane.*

   Issue Status: A review of the adopted *2001 Revised CTP* alignment for Cochran Mill Road (Route 653) south of Sycolin Creek does indeed show that the planned realignment will traverse the northwest portion of the site (See *Attachment 8*); this alignment needs to be accommodated by these applications(see Comment #3 above). It appears that the planned structures for the proposed site would be avoided by the CTP alignment. This issue remains outstanding and needs further discussion.

5. **Initial Staff Comment (First Referral April 29, 2009):** In order to accommodate the widening of Cochran Mill Road along the site frontage and within the site, the applicant needs to dedicate all planned right-of-way in keeping with the CTP for these facilities. In addition, adequate right-of-way would need to be dedicated for Gant Lane, a local road, in the event it is to be utilized to serve the proposed development. It would include 70 feet of right-of-way to accommodate the relocated Cochran Mill Road through the site. In addition, all necessary construction-related easements need to be provided, including drainage, utility and grading easements where needed.

Applicant's Response (August 20, 2009): *The Hybrid Energy Park does not front onto Cochran Mill Road and the necessary improvements to Gant Lane will be made to serve the Hybrid Energy Park.*

Issue Status: The applicant is correct that the new application, now separated from the larger proposed Stonewall Secure Business Park, no longer fronts on existing Cochran Mill Road (Route 653). The applicant also notes that the necessary improvements to Gant Lane (Route 652) will be made to serve the Hybrid Energy Park. However, other then right-of-way dedication, the applicant has not provided for any physical improvements to Gant Lane (Route 652) in the draft proffers or suggested draft conditions. As stated in Comment #3 above, OTS recommends that the applicant commit to pave Gant Lane (Route 652) from the site entrance north to Cochran Mill Road (Route 653) to a VDOT standard two lane rural facility including improvement of the bridge culvert over Sycolin Creek to VDOT specifications. Coordination of this improvement with the CTP alignment of Cochran Mill Road (Route 653) south of Sycolin Creek warrants consideration. This issue remains outstanding.

6. **Initial Staff Comment (First Referral April 29, 2009):** The status of existing Gant Lane needs to be clarified. It appears that this road is not planned to remain in use within the proposed development. If this is the case, a road abandonment procedure would need to be initiated by the applicant and its function replaced by a similar type of facility.

   Applicant's Response (August 20, 2009): *The plans have been revised to more clearly show existing Gant Lane. Gant Lane is proposed to remain in use for the Hybrid Energy Park as well as for Loudoun Water to access their property where their water treatment plant is proposed to be located.*

   Issue Status: The applicant has adequately clarified the status of Gant Lane (Route 652) noting that it will remain in use as a public road. TOTS reiterates the need for improvements to Gant Lane (Route 652).

7. **Initial Staff Comment (First Referral April 29, 2009):** All entrances need to be constructed to VDOT requirements including the provision of turn lanes and adequate sight distance.

   Applicant's Response (August 20, 2009): *All entrances and work within the road right of way will conform to the VDOT requirements.*

   Issue Status: As noted in Comments #3 and #5 above, commitments to construct improvements to Gant Lane (Route 652) are necessary.

Conclusion

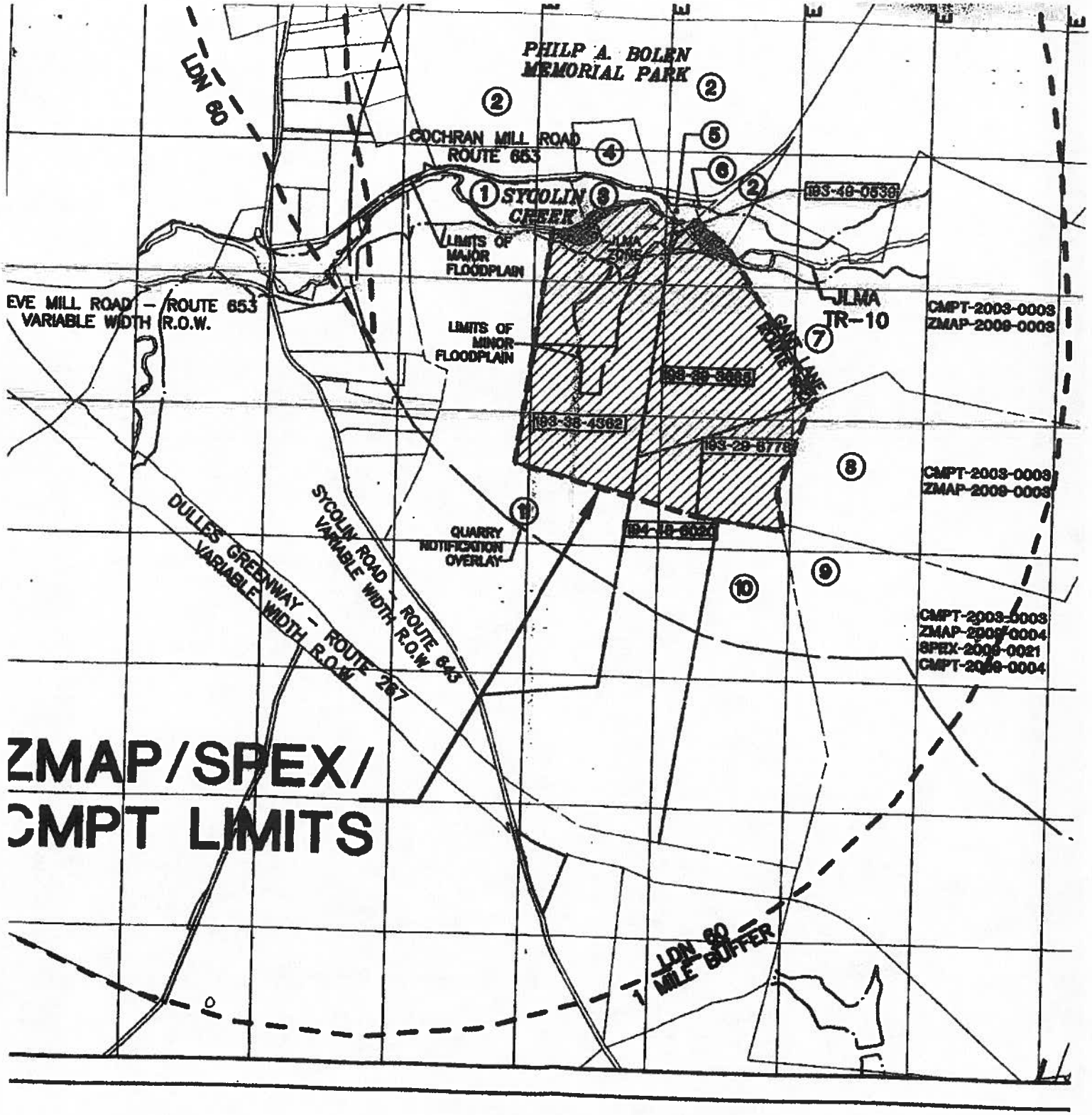
The Office of Transportation Services has no recommendation at this time. OTS will provide a recommendation once the issues identified in this referral have been adequately addressed. Transportation staff is available to meet with the Applicant to discuss the issues identified in this referral.

ATTACHMENTS

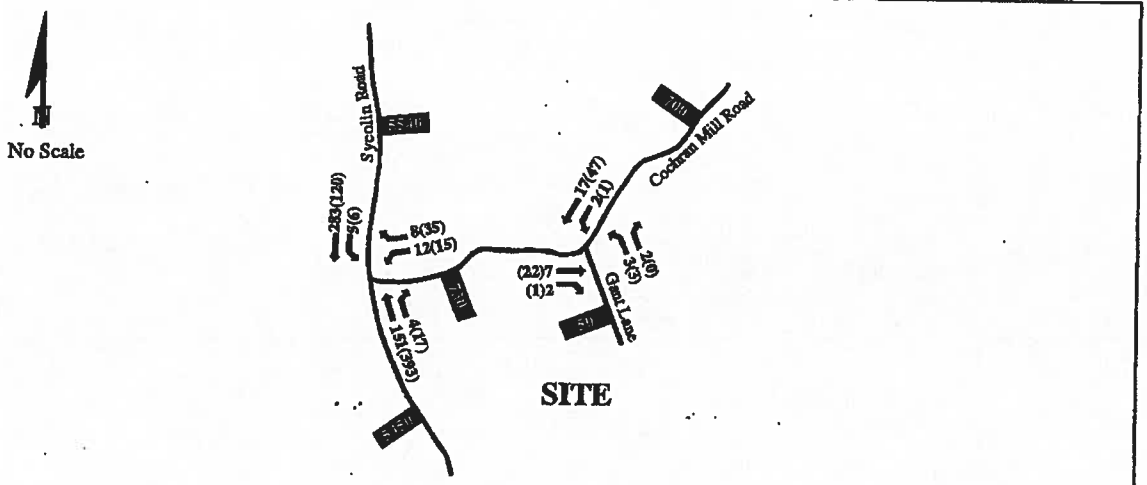
1. Site Vicinity Map
2. Existing Traffic and Levels of Service (Traffic Study Figure 1)
3. Background Traffic and Levels-of-Service (Traffic Study Figure 2)
4. Site Trip Generation (Traffic Study Table 2)
5. Site Trip Distribution and Trip Assignments (Traffic Study Figure 3)
6. Forecasted Traffic and Levels-of-Service (Traffic Study Figure 4)
7. Web Logis map showing the existing Gant Lane (Route 652) Bridge Crossing over Sycolin Creek
8. Adopted 2001 CTP Map Showing the realignment of Cochran Mill Road (Route 653)

cc: Andrew Beacher, Assistant Director, OTS
Lou Mosurak, Senior Coordinator, OTS

ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001, Green Energy Partners Stonewall (GEP/S) Hybrid Energy Park OTS-2nd ref 11-19-09/GRP.doc

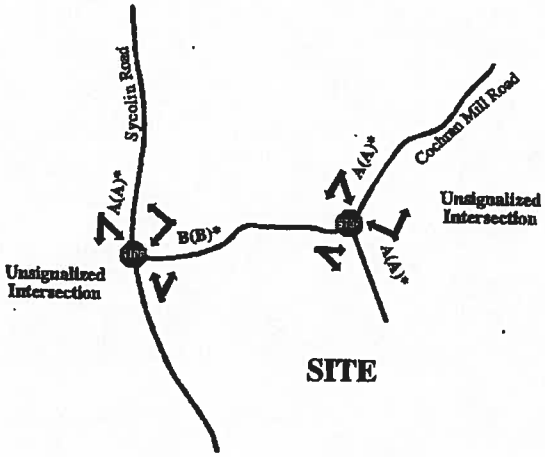


VICINITY MAP



Existing AM/PM Peak Hour Traffic Volumes

AM Peak(PM Peak)
Average Daily Trips

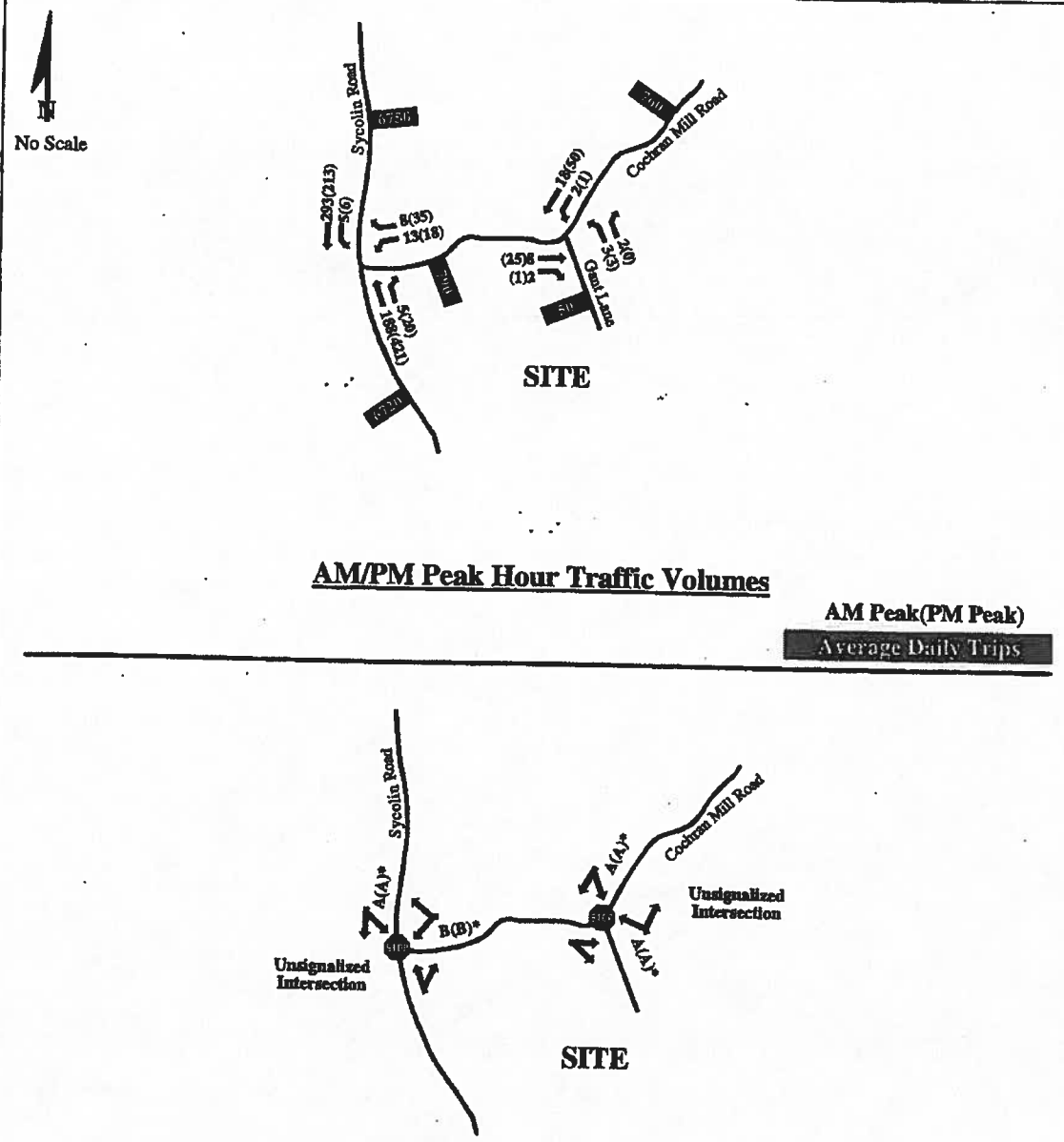


Existing AM/PM Peak Hour Levels of Service

AM Peak(PM Peak)
* Denotes Unsignalized Critical Movement

PHR+A

Figure 1 **Existing Traffic Conditions**



PHR+A

Figure 2 **2014 Background Traffic Conditions**

Site Trip Generation

The development land uses would include Hybrid Energy Park located within the proposed MR-HI property, which would accommodate 25-full time employees. The development would generate a total of 89 daily trips. **Table 2** is provided below to show the peak hour trips associated with the proposed development.

Table 2
Hybrid Energy Park
2014 Trip Generation Summary

ITE CODE	Land Use	Amount	AM Peak Hour			PM Peak Hour			ADT
			In	Out	Total	In	Out	Total	
N/A	Hybrid Energy Park	25 Employees	22	2	24	3	23	26	89
		Total Trips	22	2	24	3	23	26	89

Site Traffic Distribution And Traffic Assignments

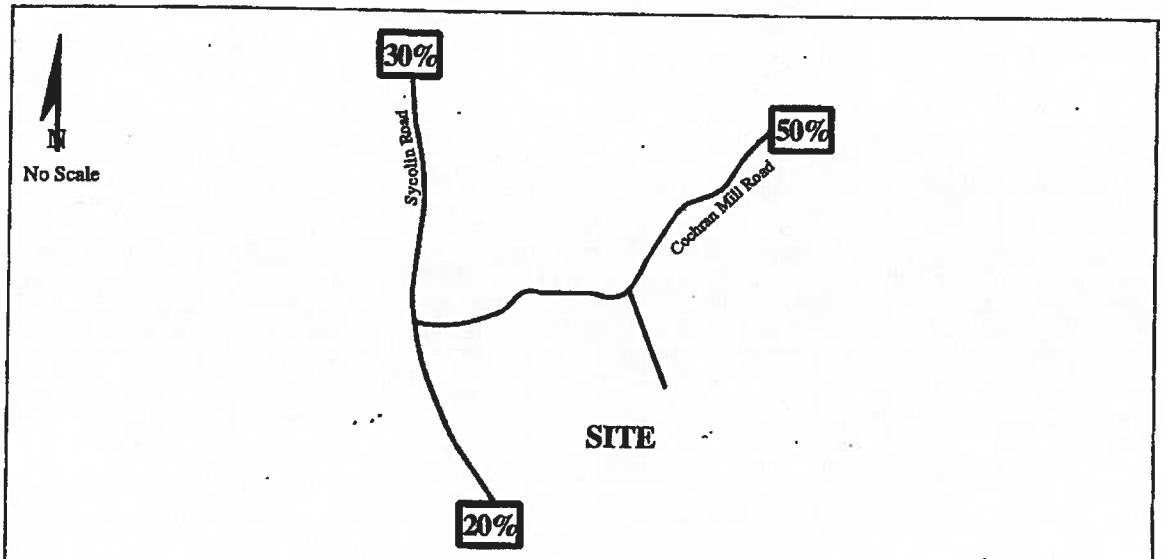
PHR+A utilized the trip disttribution percentages shown in **Figure 3** to assign the Hybrid Energy Park trips (Table 2) throughout the study area roadway network. **Figure 3** also provides the corresponding development-generated weekday AM/PM peak hour traffic volumes and ADT assignments.

2014 Build-out Traffic Conditions

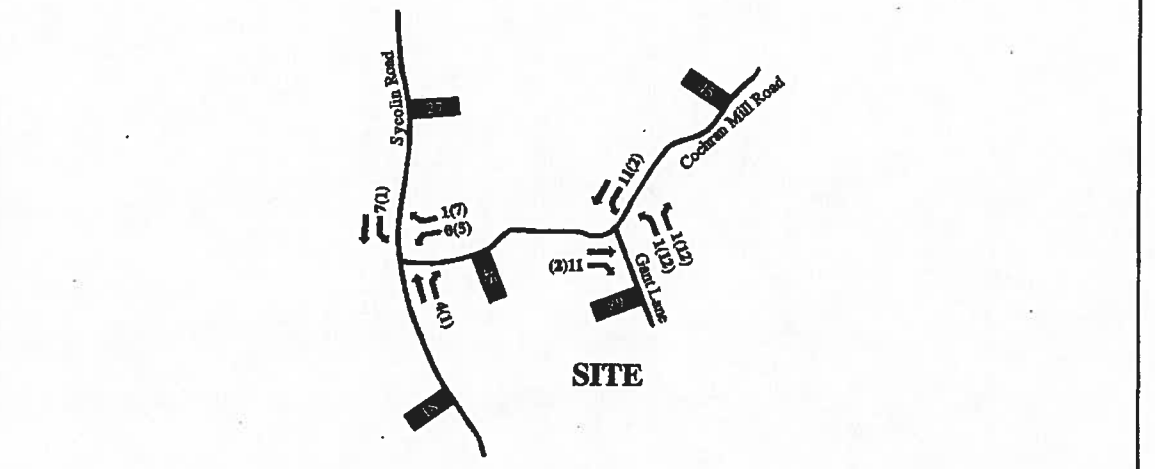
The Hybrid Energy Park trips were added to the 2014 background traffic volumes to obtain 2014 build-out conditions. **Figure 4** shows the 2014 build-out weekday ADT as well as AM/PM peak hour traffic volumes at key locations. **Figure 4** also shows the respective 2014 build-out lane geometry and weekday AM/PM peak hour levels of service.

Conclusion

Based upon the HCS+ analysis, the study area intersections of Cochran Mill Road/Gant Lane and Cochran Mill Road/Sycolin Road will operate with levels of service "B" or better during 2014 build-out conditions. Trips generated by the proposed Hybrid Energy Park will have minimal impact on the study area network and can be easily accommodated by the existing infrastructure.



Trip Distribution Percentages

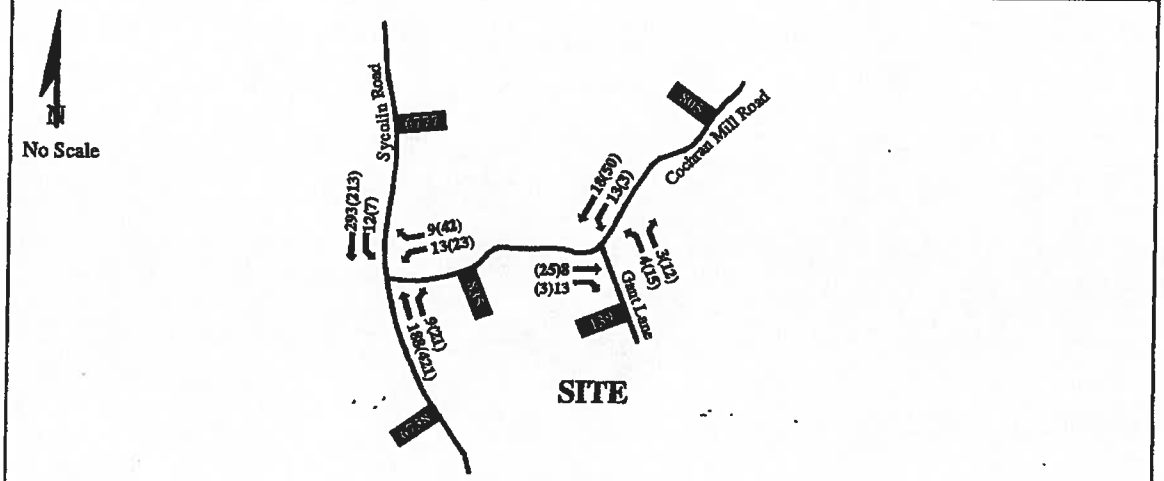


Development-Generated Trip Assignments

AM Peak(PM Peak)
Average Daily Trips

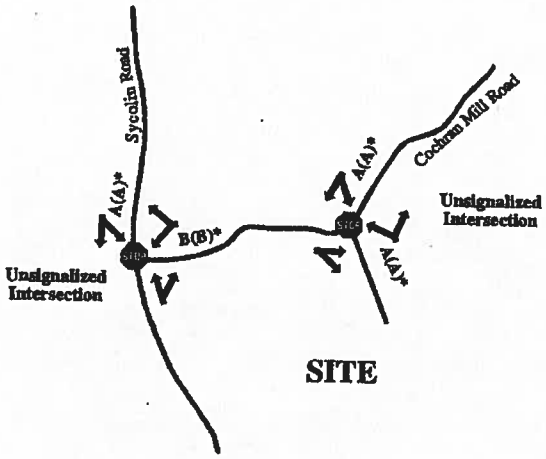
PHR+A

Figure 3 **Trip Distribution and Trip Assignments**



AM/PM Peak Hour Traffic Volumes

AM Peak(PM Peak)
Average Daily Trips

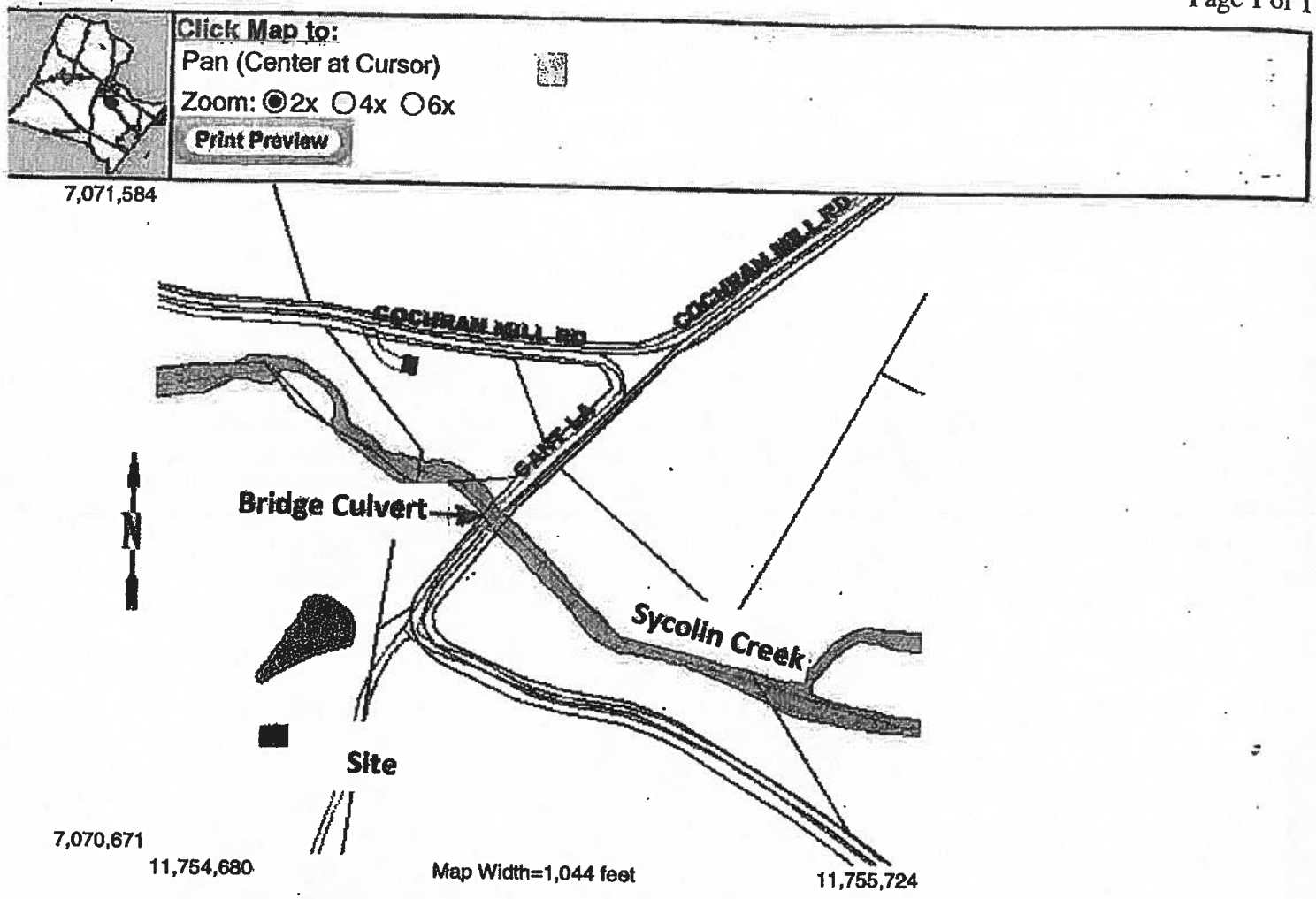


AM/PM Peak Hour Levels of Service

AM Peak(PM Peak)
* Denotes Unsignalized Critical Movement

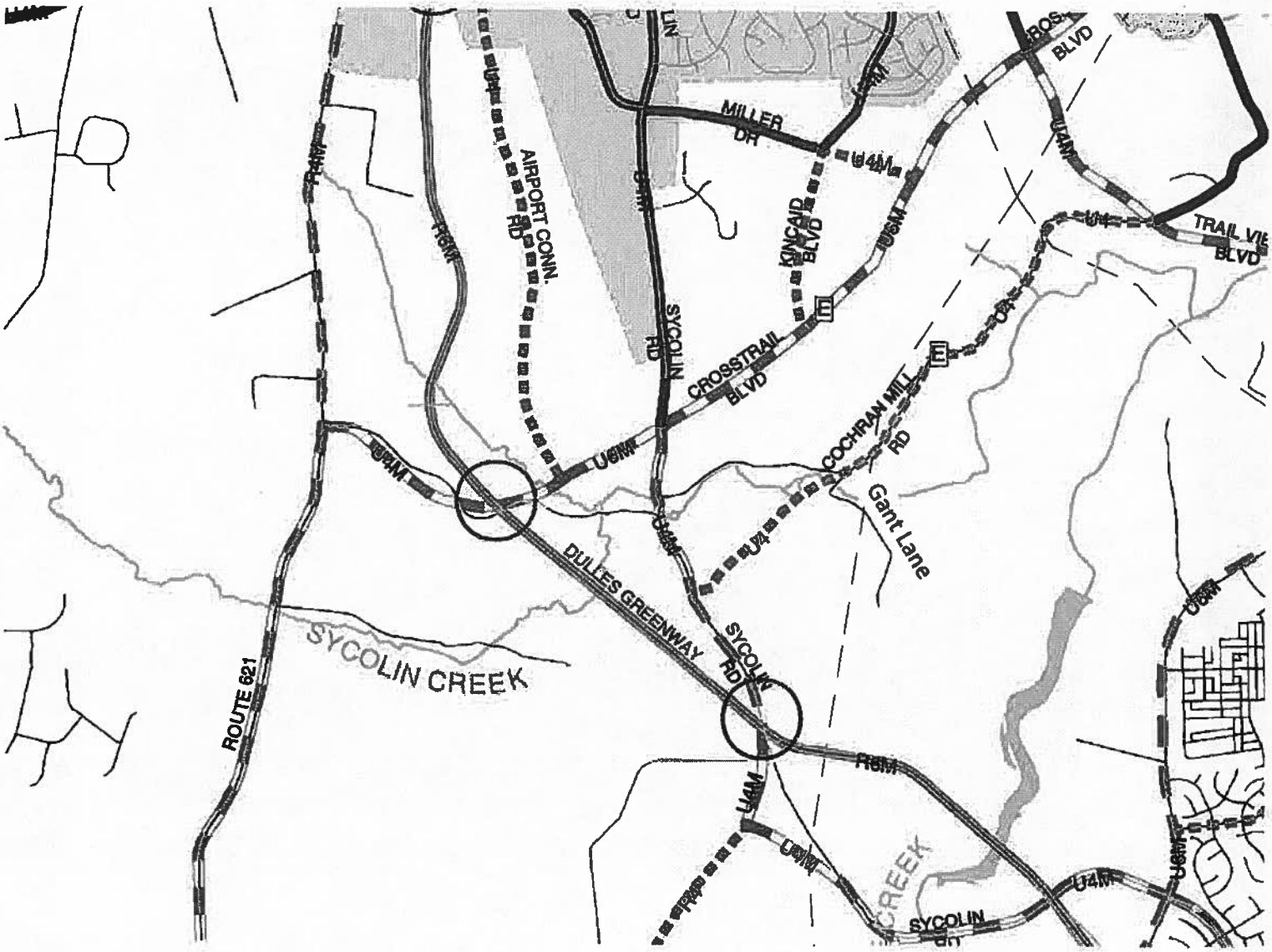
PHR+A

Figure 4 **2014 Build-out Traffic Conditions**



ATTACHMENT 7

A-70



ATTACHMENT 8

County of Loudoun

Office of Transportation Services

MEMORANDUM

DATE: April 29, 2009

TO: Judi Birkitt, Project Planner, Department of Planning

FROM: George Phillips, Senior Transportation Planner

SUBJECT: Stonewall Secure Business Park Hybrid Energy Park, SPEX 2009-0009/CMPT 2009-0001

Location: Northside of the Dulles Greenway, west of Goose Creek, east of Sycolin Road and south of Cochran Mill Road and Gant Lane (Attachment 1)

Background

The applicant, Stonewall Creek LLC, is seeking special exception and commission permit approval to allow a utility generating plant and transmission facility on approximately 87 acres to serve the proposed Stonewall Secure Business Park in its PG-GI area. Please note that the Stonewall Secure Business Park is also in to the Loudoun County for review under ZMAP 2008-0068 and SPEX 2008-0068, SPEX 2008-0069 and SPEX 2008-0070. This application is to rezone 231.78 acres from TR-10 and PD-IP and 65.52 acres from TR-10 to PD-GI for the development of a secure business park. The three special exceptions would allow a .60 FAR, a water storage tank and a water treatment plant and would include 5,756,977 square feet of industrial/office in the PD-IP zone and 1,054,326 square feet of industrial/office in the PD-GI zone. The applicant has submitted a traffic letter, dated February 25, 2009, from Patton Harris Rust & Associates, a concept plan, dated February, 2009, by William H. Gordon Associates, Inc., a statement of justification, dated March 25, 2009, and draft conditions of approval, dated March 30, 2009.

Existing & Proposed Road Network

The site is directly served by the following facilities:

Route 643 (Sycolin Road) - an unpaved road, approximately 16-18 feet wide along the site frontage. It includes segments with poor vertical and horizontal geometry. It is a paved two lane undivided rural road from a point just west of the site to Leesburg. With the exception of the Sycolin Road bridge over the Dulles Greenway, it is also unpaved to the east up to the Goose Creek Bridge. At this point it becomes a paved two-lane facility east to Route 659. Based on the latest available (2007) VDOT traffic counts, this road segment carries 2,500 average annual vehicle trips. The Countywide Transportation Plan (CTP) calls for this portion of Sycolin Road to be a four-lane median divided major collector within a 90-foot wide right of way, plus additional right-of-way for turn lanes, which are required at major intersections (Attachment 2). It is to include a 40-mph design speed and desirable median break spacing of 700 feet. Due to the future extension of the Leesburg Airport runway, a portion of Sycolin Road will need to be realigned to the southeast in the vicinity of future Crosstrail Boulevard. The CTP also notes that bicycle accommodations need to be considered in the design. Unpaved portions of this road segment are included in the VDOT Secondary Road Program for paving to two lanes. It is currently under construction and is anticipated to be constructed by November, 2009. Also, please note that a grade-separated interchange is planned in the vicinity of the Sycolin Road bridge over the Dulles Greenway which would allow full access to/from the Dulles Greenway.

Route 653 (Cochran Mill Road) - is an unpaved road, approximately 14-16 feet wide, in the vicinity of the site. Based on the latest available (2007) VDOT traffic counts, the road segment adjacent to the site carries 270 average daily vehicle trips. It is unpaved between Sycolin Road to the south and the Washington & Old Dominion (W&OD) trail further north. This unpaved segment is characterized by poor vertical and horizontal geometry with portions that appear to experience flood impacts from the adjacent Sycolin Creek. From the W&OD Trail north to Route 7, it is a paved, four-lane, undivided facility which transitions to a two-lane, paved facility. The CTP calls for the segment of Cochran Mill Road in the vicinity of the site to be a four-lane undivided minor collector within a 70-foot wide right-of-way (Attachment 2). It is to include left- and right-turn lanes at major intersections and include a 40-mph design speed. In addition, beginning at Route 652 (Gant Lane), Cochran Mill Road is to transition onto a new alignment veering south through the property on a more advantageous alignment which avoids contact with Sycolin

Creek and intersects Sycolin Road approximately 2,500 feet south of the existing Cochran Mill Road (west)/Sycolin Road intersection. There are no plans, including under existing proffers or the VDOT Secondary Road Program, to improve this portion of Cochran Mill Road.

Route 652 (Gant Lane) - is an unpaved local road, approximately 13-15 feet wide which dead ends approximately 0.6 mile southeast of Cochran Mill Road. It is characterized by poor vertical and horizontal geometry. Based on the latest available VDOT traffic counts from 2002, Gant Lane carries 30 average daily vehicle trips. This road is not included in the CTP nor is it included in the VDOT Secondary Road Program for widening or improvement.

Trip Generation Information

Based on the applicant's traffic letter, the proposed energy park would generate 24 a.m. peak hour, 26 p.m. peak hour and 89 daily vehicle trips. Based on the by-right TR-10 zoning, the 87 acre property would yield 8 single-family dwelling units. This would generate 80 daily, 15 a.m. peak hour and 11 p.m. peak hour trips. The proposed use represents an increase of 9 daily, 9a.m. peak hour and 15 p.m. peak hour trips over a by-right development scenario.

Transportation Comments

1. The proposed hybrid energy park is tied to the overall Stonewall Secure Business Park application (ZMAP 2008-0068, SPEX 2008-0068, SPEX 2008-0069 and SPEX 2008-0070) under review by the County. As such, any recommended road improvements for the proposed hybrid energy park will be included in the review of the overall Stonewall Secure Business Park. Initial OTS comments have already been released for this application (See Attachment 3).

2. The applicant's revised traffic letter, dated February 25, 2009, doesn't provide a separate transportation analysis and apparently relies on the November 5, 2008 traffic study for the overall Stonewall Secure Business Park from Wells & Associates. However, please note that this study did not include the hybrid energy park. It included more intense office and research & development land uses which generate significantly higher site traffic. The question is, does the applicant want to revise the traffic study to accurately reflect the hybrid energy park? Or is the applicant willing to utilize the existing November 5, 2008 Wells

study, which has significantly higher site traffic, for determining transportation related improvements?

3. The applicant's proposed conditions of approval do not include any transportation-related improvements. How and under what format will needed transportation-related improvements, such as to Sycolin Road and Cochran Mill Road, be provided to serve the site? Please clarify.

4. The proposed concept plan does not appear to incorporate the planned realignment of Cochran Mill Road southwest through the site to Sycolin Road as a four-lane road. This includes the bridge crossing over Sycolin Creek. In addition, the applicant does not appear to provide a road connection to either Gant Lane or Cochran Mill Road. In order to fulfill the CTP road network as detailed in Appendix 1 of the CTP and better distribute site traffic, this will need to be addressed in the overall Stonewall Secure Business Park application.

5. In order to accommodate the widening of Cochran Mill Road along the site frontage and within the site, the applicant needs to dedicate all planned right-of-way in keeping with the CTP for these facilities. In addition, adequate right-of-way would need to be dedicated for Gant Lane, a local road, in the event it is to be utilized to serve the proposed development. It would include 70 feet of right-of-way to accommodate the relocated Cochran Mill Road through the site. In addition, all necessary construction-related easements need to be provided, including drainage, utility and grading easements where needed.

6. The status of existing Gant Road needs to be clarified. It appears that this road is not planned to remain in use within the proposed development. If this is the case, a road abandonment procedure would need to be initiated by the applicant and its function replaced by a similar type of facility.

7. All entrances need to be constructed to VDOT requirements including the provision of turn lanes and adequate sight distance.

Conclusion

The Office of Transportation Services has no recommendation at this time. OTS will provide a recommendation once the issues identified in this referral have been adequately addressed.
GRP/Stonewall Secure Business Park Hybrid Energy Park/ SPEX 2009-0009/ CMPT 2009-0001 D drive/C files

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
DAVID S. EKERN, P.E.
COMMISSIONER
14685 Avion Parkway
Chantilly, VA 20151
(703) 383-VDOT (8368)

April 8, 2009

Ms. Judi Birkitt
Senior Land Use Planner
Loudoun County Department of Planning
MSC#62
1 Harrison Street, S.E.
P.O. Box 7000
Leesburg, Virginia 20177-7000

Re: Stonewall Secure Business Park – Dulles Greenway (Rt. 267) and Sycolin Road / Cochran Mill – ZMAP 2008-0017 – Loudoun County

Dear Ms. Birkitt:

We have reviewed first submission Traffic Impact Analysis (TIA) associated with the subject application. The TIA was prepared in accordance with the requirements of §15.2-2222.1 of the code of Virginia and the Virginia Traffic Impact Analysis Regulations 24 VAC 30-155.

Background Information

The 294.3-acre site is located east of Sycolin Road (Route 643), south of Cochran Mill Road, and west of Gant Lane in eastern Loudoun County. The property is currently zoned as Transitional Residential (TR-10) or Joint Land Management Area (JLMA-20).

The Applicant proposes to rezone the subject parcels to Planned Development – Industrial Park (PD-IP) and Planned Development – General Industrial (PD-GI) in order to construct a secure office/industrial park with an ultimate build-out of 6,811,304 square feet of various uses by 2020. The various uses would include general office, government office, research and development, data centers, and other light industrial facilities.

the Applicant proposes to divide the project into three phases as follows:

Phase I (Build-out 2011)

- 328,300 square feet of General Office uses;
- 341,700 square feet of Research & Development uses;
- 670,000 total square feet.

Phase II (Build-out 2016)

- 1,597,400 square feet of General Office uses;
- 1,662,600 square feet of Research & Development uses;

- 1,850,000 square feet of Data Center uses;
- 5,110,000 total square feet.

Phase III (Ultimate Build-out 2020)

- 1,597,400 square feet of General Office uses;
- 1,662,600 square feet of Research & Development uses;
- 3,551,304 square feet of Data Center uses;
- 6,811,304 total square feet.

We offer the following comments:

1. Since this is a secure site and cars must stop briefly at the entrance for security verification purposes, traffic operation at the gates is different than entering a free flow street. Traffic on Sycolin Road may experience serious delays and backups as a result of left turns and right turns overspill onto the through lanes. We recommend adding the operation at the gates into the analysis by adding a dummy traffic signal with bare minimum cycle length at the gates (e.g., 2 second green, 1 second all red time, and 2 seconds of yellow) to depict the realistic operation at site accesses and determine if indeed traffic making left or right from Sycolin onto the site does overspill onto the through lanes.
2. The proposed free operation for the westbound right turn lane exiting the site and traveling northbound on Sycolin Road plays a critical role in the operation of both site access intersections. Without the free right turns the intersection would fail. The free right turn lane would simply not function unless there is sufficient amount of receiving acceleration lane. The report must:
    - Acknowledge the importance of these receiving acceleration lanes at both site access intersections,
    - Determine their adequate lengths, and
    - Analyze the weave at south site access when 1057 WB right turn traffic cross paths with 449 NB through traffic.
3. Many of the SimTraffic models, such as 2011, 2016, 2020 TF_AM&PM_imp, contain fatal errors and are not executable. Please make sure all models (Synchro and SimTraffic) are error free and are executable. Synchro and SimTraffic models that do not execute contain errors that directly impact results and must be corrected. Errors in Synchro such as "volumes sent to intersection, not received," or "protected left without left lane" are not acceptable.
4. Please complete the following table and include it with the recommendation part of the TIA:

Scenario	Traffic Operations	Improvements by others	Improvements by the applicant	Improvements recommended by the applicant for others to perform
Existing	• 17 out of ... intersections operate at or near capacity	• Signal optimization at ... • Minor signal modification at ...	• Pave-in-place from ... to ...	• Widening at ... • Addition of a through auxiliary turn lane at ...

2011 Background				
2011 Background – Improved				
2011 Total				
2011 Total Improved				
2016 background				
2016 Background – Improved				
2016 Total				
2016 Total – Improved				
2020 background				
2020 Background – Improved				
2020 Total				
2020 Total – Improved				
2030 background				
2030 Background – Improved				
2030 Total				
2030 Total – Improved				

We have stamped the study as ***Correct and resubmit***. We are retaining the one copy you provided for our records. Please call if you have any questions.

Sincerely,

Alex Faghri
Senior Transportation Engineer

cc: Mr. Imad Salous

LOUDOUN COUNTY, VIRGINIA
Department of Fire, Rescue and Emergency Management
803 Sycolin Road, Suite 104 Leesburg, VA 20175
Phone 703-777-0333 Fax 703-771-5359

Memorandum

To: Judi Birkitt, Project Manager
From: Maria Figueroa Taylor, Fire-Rescue Planner
Date: October 21, 2009
Subject: Green Energy Partners / Stonewall Hybrid Energy Park
SPEX 2009-0009 & CMPT 2009-0001, Second Referral

Thank you for the opportunity to review the applicant's response to first referral comments dated May 5, 2009 regarding the above captioned applications. After a review of the second submission, Staff has no further comments.

If you have any questions or need additional information, please contact me at 703-777-0333.

c: Project file

LOUDOUN COUNTY, VIRGINIA
Department of Fire, Rescue and Emergency Management
803 Sycolin Road, Suite 104 Leesburg, VA 20175
Phone 703-777-0333 Fax 703-771-5359

Memorandum

To: Judi Birkitt, Project Manager
From: Maria Figueroa Taylor, Fire-Rescue Planner
Date: May 5, 2009
Subject: Hybrid Energy Park at Stonewall Secure Business Park
SPEX 2009-0009 & CMPT 2009-0001

Thank you for the opportunity to review the above captioned applications.

The Fire-Rescue GIS and Mapping coordinator offered the following information regarding estimated response times:

PIN	Project name	Leesburg VF-RC Travel Time
193-49-0539	Hybrid Energy Park Stonewall Secure Business Park	7 minutes, 47 seconds (fire) 8 minutes, 45 seconds (rescue)

The Travel Times for each project were calculated using ArcGIS and Network Analyst extension to calculate the travel time in minutes. To get the total response time another two minutes were added to account for dispatching and turnout. This assumes that the station is staffed at the time of the call. If the station is unoccupied another one to three minutes should be added.

Project name	Leesburg VF-RC Response Times
Hybrid Energy Park Stonewall Secure Business Park	9 minutes, 47 seconds (fire) 10 minutes, 45 seconds (rescue)

Staff respectfully requests that the Applicant contact the first due fire and rescue company to discuss their emergency operations plan to include the evacuation plan prior to occupancy. A guided visit to the site from F/R personnel can also assist emergency responders with their pre-planning for response to the facility. In addition the applicant must demonstrate adequate access and circulation of emergency vehicles throughout the facility.

If you have any questions or need additional information, please contact me at 703-777-0333.

c: Project file

LOUDOUN WATER

WWW.LOUDOUNWATER.ORG

PO Box 4000 | 44865 Loudoun Water Way | Ashburn, VA 20146
TEL 571.291.7700 | FAX 571.223.2910

November 2, 2009

Ms. Judi Birkitt
Department of Planning
1 Harrison Street, S.E.
P.O. Box 7000
Leesburg, VA 20177-7000

Re: ZMAP-2009-0005, SPEX-2009-0009, CMPT-2009-0001;
Green Energy Partners/ Stonewall Hybrid

Dear Ms. Birkitt:

Loudoun Water has reviewed the referenced application and has no objection to its approval.

Public water and sanitary sewer service would be contingent upon the developer's compliance with our *Statement of Policy*; *Rate, Rules and Regulations*; and Design Standards.

Should you have any questions, please feel free to contact me.

Sincerely,

Julie Atwell

Julie Atwell
Engineering Administrative Specialist

LOUDOUN WATER

WWW.LOUDOUNWATER.ORG

PO Box 4000 | 44865 Loudoun Water Way | Ashburn, VA 20146
tel 571.291.7700 | fax 571.223.2910

May 18, 2009

Ms. Judi Birkitt
Department of Planning
1 Harrison Street, S.E.
P. O. Box 7000
Leesburg, Virginia 20177-7000

Re: SPEX-2009-0009 and CMPT-2009-0001; Stonewall Hybrid Energy Park

Dear Ms. Birkitt:

Loudoun Water has reviewed the referenced Special Exception and Commission Permit and offers the following comments:

- The application does not state the source of water or sanitary sewer service. However, should service be needed from Loudoun Water's central system, availability is as per our response of April 17, 2009 on ZMAP-2008-0017 (Stonewall Business Park).

- The application depicts a 50-foot tree preservation area over Route 652, Gant Lane. Route 652 currently provides access to property owned by the Loudoun County Sanitation Authority (Loudoun Water), PIN 153-35-5865. It is important that this access be maintained.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Julie Atwell

Julie Atwell
Engineering Administrative Specialist

Loudoun County Health Department

P.O. Box 7000
Leesburg VA 20177-7000

Environmental Health
Phone: 703 / 777-0234
Fax: 703 / 771-5023

Community Health
Phone: 703 / 777-0236
Fax: 703 / 771-5393

9 April 2009

MEMORANDUM TO: Judi Birkett, Project Manager
Department of Planning, **MSC 62**

FROM: Matthew D. Tolley
Sr. Env. Health Specialist
Division of Environmental Health, **MSC 68**

SUBJECT: **SPEX 2009-0009 & CMPT 2009-0001; Hybrid Energy Park at Stonewall Secure Business Park**
LCTM: 60/38 & others (PIN 193-38-4362)

The Health Department recommends approval of this application. According to the application, the proposed development will utilize public water and sewer. The septic field and well serving the remains of an abandoned house on PIN 193-38-4362 will have be properly abandoned following application for and issuance of free permits. The plat reviewed was prepared by Gordon & Associates and was revised 30 March 2009.

Attachments Yes ___ No_X

If further information or clarification on the above project is required, please contact Matt Tolley at 771-5248.
MDT/JEL/mt
c:subdvgd.ref

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

COUNTY OF LOUDOUN
PARKS, RECREATION AND COMMUNITY SERVICES
REFERRAL MEMORANDUM

To: Judi Birkitt, Project Manager, Planning Department **(MSC #62)**

From: Brian G. Fuller, Park Planner, Facilities Planning and Development **(MSC #78)**

Through: Mark A. Novak, Chief Park Planner, Facilities Planning and Development

CC: Diane Ryburn, Director

Steve Torpy, Assistant Director

Su Webb, Chairman, PROS Board, Catoctin District

Robert C. Wright, PROS Board, Open Space Member

James E. O'Connor, PROS Board, Open Space Member

Date: November 4, 2009

Subject: **GEP/S Hybrid Energy Park (2nd Submission)**
ZMAP 2009-0005, SPEX 2009-0009, & CMPT 2009-0001

Election District: Catoctin **Sub Planning Area:** Leesburg

MCPI #: 193-14-0539, 193-29-6778, 193-39-3665, 193-38-4362, 194-49-8227, 194-48-6020, and 193-27-9018

BACKGROUND AND ANALYSIS:

The Properties are bounded to the north by Sycolin Creek and Cochran Mill Road (Route 6530, to the east by the Luck Stone quarries, to the south by the Dulles Greenway Route 267) and to the west by Sycolin Road (Route 643). The site is located in the Transition Policy Area within the Catoctin Election District and consists of approximately 294 total acres. The Properties are currently zoned TR-10 (Transition Residential -10) pursuant to the Revised 1993 Zoning Ordinance. Portions of the site are located within the Leesburg Airport Impact Overlay District, the Quarry Notification District and the Minor Floodplain.

In separate land development applications (ZMAP 2008-0017, SPEX 2008-0068, SPEX 2008-0069, and SPEX 2008-0070), Stonewall Creek LLC proposes to develop secure business park to provide a large campus setting for high security uses and facilities creating an opportunity in Loudoun County for a new Federal Government Contracting Industry Center. To support that program, the Applicant is seeking to rezone the Properties from TR-10 to PD-IP (Planned Development – Industrial Park) and PD-GI (Planned Development – Office Park) in accordance with the provisions of the Revised 1993 Zoning Ordinance. In addition, the Applicant is seeking Special Exceptions to

permit office space that does not meet the criterion of Section 4-503(G), to allow a 0.60 FAR; water storage tank; and water treatment plant.

As part of the Rezoning Application, the Applicant is proposing redundant and backup utilities. To support the uses identified in the Rezoning, the Applicant, Green Energy Partners/Stonewall LLC, has applied for this Special Exception and Commission Permit to allow a utility generating plant and transmission facility on approximately 87 acres in the PD-GI portion of the site proposed as a part of ZMAP 2008-0017. Most specifically, the Applicant is proposing to build a primary and peak demand facility including up to 600 megawatt combined cycle natural gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power gas turbines and a 1 megawatt solar array. The Hybrid Energy Park will utilize up to 5 million gallons per day of waste water effluent for cooling water. By turning the water into steam, the Applicant claims this will eliminate two billion gallons of effluent per year from being discharged into the Chesapeake Bay.

The County's special exception and commission permit application process is the first step in the process of approval for the Hybrid Energy Park which requires additional Federal and State agencies approval. The Applicant claims that the electricity will be generated by the most efficient and state-of-the-art technology which supplies northern Virginia with power and address the shortage and congestion in the regional Power Service Area. In addition, the plant will provide an immediate, redundant source of power for the secure business park in which it will be located.

COMMENTS:

With respect to Parks, Recreation and Community Services we offer the following comments and recommendations:

1. PRCS notes that the subject properties are adjacent to parcels MCPI# 191-16-9866, 193-47-8662, and 193-48-6164, which has been designated as Philip A. Bolen Memorial Park and is currently under construction. The portions of these properties adjacent to Sycolin Creek have been designated for stream valley protection and public access to the stream channel.

   Staff requests more information on how the proposed power plant and its ancillary structures will visually impact the park. Portions of the park adjacent to and within the viewshed of the power plant have been designated for passive recreation and environmental enjoyment.

   Applicant Response: Photosimulations will be submitted to address the visual impacts from the surrounding areas. The Hybrid Energy Park facilities will be designed with a low profile. The tallest structures, i.e., the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers running through the area. A cooling tower utilizing high-efficiency mist

eliminators is included in the design. Under most conditions, the cooling tower plume or mist is expected to be limited to within the facilities property, and the probability of any adverse local effects from the cooling tower plume is negligible. The previously referenced enclosed Air Quality Study states on Page 25, "..., the probability of occurrence of any adverse effects from the cooling tower plumes on the surrounding community is negligible."

Issue Status: Staff requests copies of these photosimulations for review when they are available.

2. Staff requests more information on any potential electronic magnetic transmission (EMT) that may be emitted by the power plant and what impact it may have on the users of the adjacent park.

   Applicant Response: Unlike the existing high-voltage transmission lines, and future NOVEC substation, the Hybrid Energy Park facility is not within the Philip A. Bolen Memorial Park property and will not have an impact on the users of the park.

   Issue Status: Unresolved. The Applicant should provide any information on potential electronic magnetic transmission (EMT) that may be emitted by the power plant.

   While the majority of Bolen Park (active area) is north (over the ridge) from the proposed power plant, there are three existing County-owned properties bordering the subject property for passive use as a part of Bolen Park, 193-47-8662, 193-48-6164 and 191-16-9866. The Board of Supervisors recently accepted additional properties for passive use adjacent to the subject property along Sycolin Creek, including 193-49-0957 and 193-49-2459. These parcels will provide potential stream valley access for hiking, fishing, and non-motorized watercraft.

3. Staff requests more information about the potential transportation impacts of the project during and after construction, and how it may impact the adjacent park.

   Applicant Response: The transportation impacts of the Hybrid Energy Park should have no effects on the park. The park entrance is from Sycolin Road and the Hybrid Energy Park entrance will be from Gant Lane. During construction, a delivery and traffic program will be implemented in order to reduce any conflicts. The Applicant has included a proffer to address these concerns. After construction, traffic will be generated by approximately 25 employees spread over a three shift basis with routine deliveries to the Hybrid Energy Park.

Issue Status: Unresolved. Staff did not notice the inclusion of a delivery and traffic program as stated in the Applicant's response. Please provide a copy for review with the subsequent submission. Also, the Applicant's proposed transportation proffers do not appear to adequately address the potential transportation issues associated with such a large project.

4. The current Revised Countywide Transportation Plan (CTP) proposes Cochran Mill Road and Sycolin Road to be improved, widened, or realigned through the subject property. Please revise and/or explain this discrepancy.

   Applicant Response: Gant Lane will be improved to accommodate the traffic that will be generated by the approximately 25 employees of the Hybrid Energy Park.

   Issue Status: Resolved. Staff's issue was with the original proposals for the Stonewall Secure Business Park and this applicant. Based on Applicant responses to OTS comments 4 and 5 on pages 41 and 42 of the response letter, it appears that the two applications have been separated, and the issue is no longer valid.

5. Staff notes that the proposed power plant would be in close proximity to the Luck Stone Quarries. It appears that the power plant will include a lot of gas and water piping, and Staff is concerned about how the quarry and its rock-blasting may impact the plant infrastructure.

   Applicant Response: The Hybrid Energy Park facility equipment is not expected to be prone to impact damage from any blasting operation.

   Issue Status: Resolved.

6. Staff requests more information on the proposed gas turbines proposed within the power plant and how they may impact the surrounding natural environment and public safety.

   Applicant Response: The facility will utilize four combustion turbines each rated at 197 MW at 59°F to generate power. Two turbines will operate in combined-cycle mode. These combustion turbines will drive electric generators. Hot-exhaust gases from each of the two combustion turbines will each exhaust through a Heat Recovery Steam Generator ("HRSG"), generating steam to drive a single steam turbine and electric generator, thus increasing the total power produced to approximately 586 MW at 59°F. The units will include state-of-the-art combustion technology and control equipment to limit air pollutant emissions. Natural gas is a clean burning fuel that when combusted generates minimal

particulate and sulfur oxide emissions, and has the lowest Greenhouse Gas ("GHG") emission rate of all fossil fuels. Emissions of nitrogen oxides (NOx) will be limited by the use of dry low NOx combustion system and application of a selective catalytic reduction ("SCR") control system. The SCT system will rely on a controlled aqueous ammonia injection, which consists of a solution of water (75%) and ammonia (25%). Carbon monoxide (CO) emissions will be reduced by use of a CO oxidation catalyst. The use of these controls match the most stringent controls required of any combined cycle combustion turbine in the United States. The combined cycle units are expected to operate intermittently or continuously based on seasonal demand. Two of the four combustion turbines will operate as simple-cycle peaking unites, only operating during periods of high demand for electric power, and be designed to limit their environmental impact. The peaking units will also utilize SCR to control NOx emissions during steady-state operating conditions.

The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, provides additional information.

Issue Status: Resolved.

7. Staff requests more information on the noise and light glare impacts to the surrounding natural environment that are typically associated with power plants.

Applicant Response: The Hybrid Energy Park facilities will comply with the requirements contained in the Zoning Ordinance. The major noise producing equipment, i.e., combustion turbines and steam turbine, as well as certain other equipment, will be designed with noise attenuating features as necessary to meet these requirements. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facility will be designed to enable outdoor lighting for distinct areas of the facilities to be switched off while not in use or not required for safety considerations.

Issue Status: Unresolved. Staff acknowledges the Applicant's response to comply with the requirements contained in the Zoning Ordinance. However, staff has concerns on the potential noise levels generated from this project in terms of the combustion turbines and the steam turbine. As mentioned in Comment 3 above, a passive area is planned along Sycolin Creek adjacent to the subject property. In addition, the main portion of Bolen Park contains approximately 80 acres of passive use approximately 880 feet north of the proposed facility. Staff requests that the Applicant work closely with PRCS to assure the necessary noise abatement is met and satisfactory to PRCS.

8. Staff notes that the subject properties are in close proximity to the Leesburg Regional Airport. The Applicant should demonstrate to Staff, the Planning Commission, and the Board of Supervisors how any potential impacts to the airport (e.g., noise, light glare, building heights) will be mitigated.

   Applicant Response: The proposed facility will be reviewed with the FAA for potential impacts to the Leesburg Airport Flight operations. An application has been filed with the FAA. Any required lighting or other considerations as directed by the FAA will be included in the final facility design.

   Issue Status: Resolved.

9. It appears that the SPEX Plat shows potential impacts to stream corridors, including major and minor floodplain. The Applicant should demonstrate to Staff, the Planning Commission, and the Board of Supervisors how any potential impacts to stream corridors will be mitigated, including any potential discharge into Sycolin Creek, which flows into Goose Creek (a state scenic river) and onto the Potomac River.

   Applicant Response: No processed water will be discharged onsite or into Sycolin Creek. The processed water will be recycled and reused onsite nearing zero discharge. RSCOD and the stream valley buffers are clearly delineated on the revised plans. The existing pond will be improved for stormwater management and quality. The site does not drain toward the Goose Creek reservoir.

   Issue Status: Resolved.

10. Staff requests additional, detailed information on the "unique hybrid process" of using wastewater to cool the facility that the Applicant mentions in their Statement of Justification. Please also provide information on how the Applicant proposes the wastewater will be piped and/or pumped from the Leesburg Sewage Treatment Plant to the proposed power plant.

    Applicant Response: The facility is planning to purchase approximately 5 million gallons per day of either treated effluent from the Town of Leesburg wastewater treatment facility, or water stored in reservoirs from Loudoun Water. The water will be used as cooling water in a mechanical draft evaporative cooling tower, and to produce high quality processed water for steam as part of the combined cycle unit. A portion of the cooling water from the cooling towers will be recycled

and reused. Water will be pumped from the Leesburg wastewater treatment plant or from Loudoun Water by underground pipes.

Issue Status: Staff understands and is supportive of using wastewater from the Town of Leesburg. Staff also notes the addition of using water from the Loudoun Water reservoirs, which are currently under review by the County. Staff requests more information on how much daily water intake is required by the proposed power plant.

In addition, the Applicant states that the Leesburg wastewater will distributed to the power plant by underground pipes. The Town of Leesburg is approved to run a sewer line through the rear of Bolen Park, bringing untreated wastewater to the treatment plant. Please provide information on the proposed location of the addition pipes that will be required to serve the proposed power plant.

11. Staff requests more information on the "voluntary open space" to be provided with this application. Staff requests that the Applicant consider dedicating a portion of the open space along Sycolin Creek to the County for purposes of stream valley park and/or trail.

Applicant Response: The Hybrid Energy Park will be secured by a fence around the site and will have secured access. Due to the location of the major floodplain on the Subject Property, the Applicant will work with Staff on the location of the fence.

Issue Status: PRCS appreciates the Applicant's willingness to work with Staff on the location of their security fencing. Staff would appreciate the opportunity to meet with the Applicant, and discuss an opportunity to dedicate approximately 8.5 acres of floodplain delineated along the northern property line adjacent to Sycolin Creek to the County for enhancement of the existing passive use on the south side of Cochran Mill Road. This would also include a commitment within the Proffers.

12. Staff notes that the proposed power plant is in close proximity to the NOVEC power substation recently approved on the Philip A. Bolen Memorial Park site. Staff requests more information on how this facility may impact or augment the NOVEC substation.

Applicant Response: At the present time, the proposed NOVEC substation in the Philip A. Bolen Memorial Park is not expected to impact the proposed facility. The Applicant has met with NOVEC to determine if there might be mutually beneficial design considerations.

Issue Status: **Resolved.**

13. Please revise Sheets 1, 2, 3, 5 and 6 of the SPEX Plat to identify and label Philip A. Bolen Memorial Park.

    Applicant Response: *The plan sheets have been revised to identify and label the Philip A. Bolen Memorial Park as requested.*

    Issue Status: **Resolved.**

CONCLUSION:

PRCS still has several outstanding issues, specifically Comments 1, 2, 3, 7, 10, and 11, which need to be addressed.

If you have any questions or concerns regarding these comments, please do not hesitate to contact me personally via phone at 571-258-3251, or via e-mail at brian.fuller@loudoun.gov. You may also contact Mark Novak via phone at 703-737-8992, or via e-mail at mark.novak@loudoun.gov. I look forward to attending any meetings or work sessions to offer PRCS support, or to be notified of any further information regarding this project.

COUNTY OF LOUDOUN
PARKS, RECREATION AND COMMUNITY SERVICES
REFERRAL MEMORANDUM

To: Judi Birkitt, Project Manager, Planning Department **(MSC #62)**

From: Brian G. Fuller, Park Planner, Facilities Planning and Development **(MSC #78)**

Through: Mark A. Novak, Chief Park Planner, Facilities Planning and Development

CC: Diane Ryburn, Director
Steve Torpy, Assistant Director
Su Webb, Chairman, PROS Board, Catoctin District
Robert C. Wright, PROS Board, Open Space Member
James E. O'Connor, PROS Board, Open Space Member

RECEIVED
APR 30 2009
PLANNING DEPARTMENT

Date: April 29, 2009

Subject: **Hybrid Energy Park at Stonewall Secure Business Park**
SPEX 2009-0009 and CMPT 2009-0001

Election District: Catoctin **Sub Planning Area:** Leesburg

MCPI #: 193-14-0539, 193-29-6778, 193-39-3665, 193-38-4362, 194-49-8227, 194-48-6020, and 193-27-9018

BACKGROUND AND ANALYSIS:

The Properties are bounded to the north by Sycolin Creek and Cochran Mill Road (Route 6530, to the east by the Luck Stone quarries, to the south by the Dulles Greenway Route 267) and to the west by Sycolin Road (Route 643). The site is located in the Transition Policy Area within the Catoctin Election District and consists of approximately 294 total acres. The Properties are currently zoned TR-10 (Transition Residential -10) pursuant to the Revised 1993 Zoning Ordinance. Portions of the site are located within the Leesburg Airport Impact Overlay District, the Quarry Notification District and the Minor Floodplain.

In separate land development applications (ZMAP 2008-0017, SPEX 2008-0068, SPEX 2008-0069, and SPEX 2008-0070), Stonewall Creek LLC proposes to develop secure business park to provide a large campus setting for high security uses and facilities creating an opportunity in Loudoun County for a new Federal Government Contracting Industry Center. To support that program, the Applicant is seeking to rezone the Properties from TR-10 to PD-IP (Planned Development – Industrial Park) and PD-GI (Planned Development – Office Park) in accordance with the provisions of the Revised 1993 Zoning Ordinance. In addition, the Applicant is seeking Special Exceptions to allow office space that does not meet the criterion of Section 4-503(G), to allow a 0.60 FAR; water storage tank; and water treatment plant.

As part of the Rezoning Application, the Applicant is proposing redundant and backup utilities. To support the uses identified in the Rezoning, the Applicant, Green Energy Partners/Stonewall LLC, has applied for this Special Exception and Commission Permit to allow a utility generating plant and transmission facility on approximately 87 acres in the PD-GI portion of the site proposed as a part of ZMAP 2008-0017. Most specifically, the Applicant is proposing to build a primary and peak demand facility including up to 600 megawatt combined cycle natural gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power gas turbines and a 1 megawatt solar array. The Hybrid Energy Park will utilize up to 5 million gallons per day of waste water effluent for cooling water. By turning the water into steam, the Applicant claims this will eliminate two billion gallons of effluent per year from being discharged into the Chesapeake Bay.

The County's special exception and commission permit application process is the first step in the process of approval for the Hybrid Energy Park which requires additional Federal and State agencies approval. The Applicant claims that the electricity will be generated by the most efficient and state-of-the-art technology which supplies northern Virginia with power and address the shortage and congestion in the regional Power Service Area. In addition, the plant will provide an immediate, redundant source of power for the secure business park in which it will be located.

COMMENTS:

With respect to Parks, Recreation and Community Services we offer the following comments and recommendations:

1. PRCS notes that the subject properties are adjacent to parcels MCPI# 191-16-9866, 193-47-8662, and 193-48-6164, which has been designated as Philip A. Bolen Memorial Park and is currently under construction. The portions of these properties adjacent to Sycolin Creek have been designated for stream valley protection and public access to the stream channel.

   Staff requests more information on how the proposed power plant and its ancillary structures will visually impact the park. Portions of the park adjacent to and within the viewshed of the power plant have been designated for passive recreation and environmental enjoyment.

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3. Staff requests more information about the potential transportation impacts of the project during and after construction, and how it may impact the adjacent park.

4. The current Revised Countywide Transportation Plan (CTP) proposes Cochran Mill Road and Sycolin Road to be improved, widened, or realigned through the subject property. Please revise and/or explain this discrepancy.

5. Staff notes that the proposed power plant would be in close proximity to the Luck Stone Quarries. It appears that the power plant will include a lot of gas and water piping, and Staff is concerned about how the quarry and its rock-blasting may impact the plant infrastructure.

6. Staff requests more information on the proposed gas turbines proposed within the power plant and how they may impact the surrounding natural environment and public safety.

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10. Staff requests additional, detailed information on the "unique hybrid process" of using wastewater to cool the facility that the Applicant mentions in their Statement of Justification. Please also provide information on how the Applicant proposes the wastewater will be piped and/or pumped from the Leesburg Sewage Treatment Plant to the proposed power plant.

11. Staff requests more information on the "voluntary open space" to be provided with this application. Staff requests that the Applicant consider dedicating a portion of the open space along Sycolin Creek to the County for purposes of stream valley park and/or trail.

12. Staff notes that the proposed power plant is in close proximity to the NOVEC power substation recently approved on the Philip A. Bolen Memorial Park site. Staff requests more information on how this facility may impact or augment the NOVEC substation.

13. Please revise Sheets 1, 2, 3, 5 and 6 of the SPEX Plat to identify and label Philip A. Bolen Memorial Park.

CONCLUSION:

PRCS has identified above, several outstanding issues that require additional information to complete the review of this application.

If you have any questions or concerns regarding these comments, please do not hesitate to contact me personally via phone at 571-258-3251, or via e-mail at brian.fuller@loudoun.gov. You may also contact Mark Novak via phone at 703-737-8992, or via e-mail at mark.novak@loudoun.gov. I look forward to attending any meetings or work sessions to offer PRCS support, or to be notified of any further information regarding this project.

County of Loudoun

Department of Planning

MEMORANDUM

DATE: October 26, 2009

TO: Judi Birkitt, Senior Planner, Land Use Review

FROM: Heidi Siebentritt, Historic Preservation Planner, Community Information and Outreach

SUBJECT: ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001 Green Energy Partners/ Stonewall (GEP/S) Hybrid Energy Park – Second Referral

Background

The subject application relates to a 90.50-acre portion of the 294-acre compilation of properties previously reviewed by staff under ZMAP 2008-0017 & SPEX 2008-0068, 69 & 70 (Stonewall), and was the subject of first referral comments dated June 1, 2009. The applicant is currently requesting to re-zone a 90.50 piece of the 294-acre Stonewall property to MR-HI to construct a hybrid energy plant.

In response to staff's June 1, 2009 referral regarding cultural resources within the 294-acre Stonewall project area, the applicant has stated that staff's comments and recommendations do not apply to the subject application since no significant resources were identified within the 90.50–acre project area currently under consideration.

Analysis

Sites 44LD1326, 44LD1328 and 44LD1330 – Historic Lower Sycolin

As stated in the June 1, 2009 referral, archaeological sites 44LD1326, 44LD1328 (including architectural resource 053-5278), 44LD1329 and 44LD1330 (including architectural resource 053-6084) were all identified within the 264-acre Stonewall property as part of the Phase 1 archaeological survey of the 625-acre collection of properties formally known as "Creekside" conducted by Thunderbird Archeology in 2005. Sites 44LD1326 and 44LD1328 are located within the current 90.50 acre project area under consideration and Site 44LD1330 is located at the edge of the project area and may be impacted by any alteration or improvement to Gant Lane (Route 652) which would serve as the ingress/egress to the power plant.

Sites 44LD1326, 44LD1328 and 44LD1330 are the remains of historic house sites that date to the late 19th to early 20th century. These sites are believed to be the vestiges of the post Civil War, African-American settlement of Lower Sycolin. None of these sites are considered by the consultant to be eligible for listing in the National Register of Historic Places as individual historic resources. However, this area which is bounded by Cochran Mill Road, Sycolin Road and Goose Creek is important in the context of post-Civil War reconstruction and African-American history in Loudoun County. There are very few remaining buildings that mark the Lower Sycolin community and the history of Lower Sycolin has not been well researched. This is true of all 30 of the historically African-American settlements that have been identified in Loudoun County. In fact, of the eight historic African-American settlements that have been identified east of Route 15, five (Nokesville, Oak Grove, Willard, Conklin and Farmwell) have already been completely lost to newer development without the benefit of historic research and recordation.

Site 44LD1195 – Sycolin Pottery

The current application shows that the only ingress/egress for the proposed power plant will be Gant Lane. In staff's June 1, 2009 referral comments for the original Stonewall application (ZMAP 2008-0017, etal.), staff expressed concern about the location of the proposed entrances to the Stonewall property from Sycolin Road because of the proximity of the entrances and proposed berms to the Sycolin Pottery Site (44LD1195). Staff continues to have concern about the preservation of the Sycolin Pottery Site and seeks clarification on the overall plan for access to the power plant within the larger Stonewall project area. Given the significance of this site, every effort should be made to ensure that it is conserved in place and protected through easement in perpetuity. As noted in the June 1, 2009 referral, the Heritage Preservation Plan specifically states that the County's primary objective is the protection and conservation of significant archaeological resources identified during the development process (*Heritage Preservation Plan, Chapter 2, Archaeological Resources Policy 9*).

Recommendations

Due to the dearth of information about the lives of African Americans in the County, both before and after the Civil War, staff continues to recommend that the Lower Sycolin settlement, represented by the above archaeological sites, be interpreted for the general public as called for in Heritage Preservation Plan, (Chapter 2, *Archaeological Resources Policy 4*). To mitigate impacts to Sites 44LD1326, 44LD1328 and 44LD1330, staff recommends that a concise, well researched narrative history of the historically African American community of Lower Sycolin be produced for the purposes of public education. Graphics, including historic maps and historic and current photographs, should be included. The report should include a current map showing the locations of extant structures and archaeological sites thought to be associated with the community. Staff requests that three hard copies of the narrative history report and one electronic copy be delivered to the County upon completion. As a point of

departure for this research, staff can make available the *Loudoun County African-American Architectural Resources Survey*, prepared for the County by History Matters, LLC in 2004. This report references the community of Sycolin and some of the architectural resources visible from Sycolin Road which relate to that community.

Specific to site 44LD1195, staff recommends that every effort be made to conserve this significant resource in place through a protective easement in perpetuity and requests clarification on the overall plan for access to proposed and future uses on the 294-acre Stonewall property. Further, staff requests that the applicant coordinate with representatives of Loudoun Water and Luckstone Quarry on ingress/egress issues as applications are currently under review by the County for the expansion of the quarry and a water storage facility on property adjacent to the 294-acre Stonewall property.

Coordination with VDHR

The application materials submitted suggest that permits from the Army Corps of Engineers may be required for this project. If this project requires federal permits or will use federal funds, the development proposal will be reviewed by the Virginia Department of Historic Resources (VDHR) per Section 106 of the National Historic Preservation Act of 1966 (as amended). Impacts to resources listed in, or eligible for, the National Register of Historic Places may require mitigation per VDHR. It is important to note that VDHR will make the ultimate determination regarding National Register eligibility for all affected resources. Therefore, no action should be taken to impact or mitigate impacts to any cultural resource on the property until VDHR is consulted.

Staff recommends that the applicant consult with VDHR as early as possible to ensure that any impact mitigation proposed to be proffered to the County as part of an approval of this application is consistent with VDHR's requirements under Section 106.

cc: Michael "Miguel" Salinas, AICP, Program Manager, Community Information & Outreach
Julie Pastor, AICP, Director, Department of Planning

County of Loudoun

Department of Planning

MEMORANDUM

DATE: June 1, 2009

TO: Judi Birkitt, Senior Planner, Land Use Review

FROM: Heidi Siebentritt, Historic Preservation Planner, Community Information and Outreach

SUBJECT: ZMAP 2008-0017 & SPEX 2008-0068, 69 & 70 Stonewall

Background

The subject property is bounded to the south by the Dulles Greenway (Route 267), to the west by Sycolin Road (Route 643), to the north by Cochran Mill Road (Route 653) and to the east by Gant Lane (Route 652). The project area is comprised of multiple parcels of land once part of the proposed Ridgewater Creek (formerly Creekside) development under ZMAP 2005-0028.

The applicant seeks to rezone approximately 294 acres of land currently zoned TR-10 and JLMA -20 to the PD-GI and PD-IP zoning districts. The applicant further seeks approval of several Special Exceptions to construct a water treatment and water storage facility and to allow an increased Floor Area Ratio (FAR).

Plan Compliance

The subject property is governed by the policies of the Revised General Plan and the Heritage Preservation Plan. The Revised General Plan states the County will require an archeological and historic resources survey as part of all development applications and include a plan for recordation and preservation of any identified resources, along with measures for mitigation and adaptive reuse (*Revised General Plan, Chapter 5, Historic and Archaeological Resources Policy 11*).

The Heritage Preservation Plan specifically states that the County's primary objective is the protection and conservation of significant archaeological resources identified during the development process (*Heritage Preservation Plan, Chapter 2, Archaeological Resource Policy 9*). The Heritage Preservation Plan further states that research and findings associated with archaeological surveys should be conveyed to the public, in a format that is easily understood

and accessible to the general public (Heritage Preservation Plan, Chapter 2, *Archaeological Resource Policy 4*).

Analysis

Staff has reviewed the Phase 1 Archaeological Survey Report prepared by Thunderbird Archeology, dated October, 2005. The 2005 survey and resulting report relate to the former 652 acre Ridgewater Creek application. The current application includes 294 acres of the 652-acre area represented in the report. Staff has also reviewed the September 2006 Archaeological Evaluation of Site 44LD1195 prepared by The Louis Berger Group, Inc. This report was completed as part of an impact study conducted for proposed improvements to Sycolin Road. Portions of site 44LD1195 were identified on both the east and west sides of Sycolin Road and are within the project area.

Prior to the Phase 1 survey conducted for ZMAP 2005-0028 in 2005, one archaeological site, 44LD1195, and two architectural resources, 053-5277 and 053-5278 had been recorded on the subject property. In addition, the 2005 Phase 1 survey produced 10 newly identified archaeological sites designated as sites 44LD1321-44LD1330. These sites represent both prehistoric and historic land use of the area over a roughly 8,000 year period. Five of the sites identified as part of the 2005 survey as well as previously recorded site 44LD1195 and architectural resource 53-5278 are located within the current proposed project area.

Site 44LD1195 – Early 19th Century Pottery

The most significant resource identified on the subject property is the site of an early 19th century pottery industry, site 44LD1195. This site was evaluated at the Phase 2 level by the Louis Berger Group, Inc. as part of an impact study conducted for proposed improvements to Sycolin Road. The site was identified on both sides of Sycolin Road. The Phase 2 investigation confirmed that the portion of the site east of Sycolin Road is eligible for the National Register of Historic Places. This is the portion of the site that will be impacted by the proposed development, described as "Area M" in the Phase 1 report.

Site 44LD1195 is truly a unique and important archaeological site with tremendous future research potential, worthy of protection and conservation. The site has been interpreted as an early 19th century pottery kiln site which produced both stoneware and redware vessels. The site also includes the remains of a domicile associated with the pottery industry. The site represents a previously unknown pottery industry that likely links to potteries in both Alexandria and the Shenandoah Valley. Researchers have analyzed artifacts from the site and conducted research on the design and manufacturing methods employed at the Sycolin pottery. Ceramic vessels now in a private collection have been attributed to the site. These vessels are considered to be national museum quality pieces. The research that has already been conducted on this

site will re-write the history of ceramic production, commerce and trade in the Mid-Atlantic region.

Given the significance of this site, every effort should be made to ensure that it is conserved in place and protected through easement in perpetuity. As noted above, the Heritage Preservation Plan specifically states that the County's primary objective is the protection and conservation of significant archaeological resources identified during the development process (*Heritage Preservation Plan, Chapter 2, Archaeological Resource Policy 9*). The current CDP proposal shows that site 44LD1195 will be impacted by the construction of "entrance #1 as shown on sheet 5 of the CDP. Along the entrance, vegetative berms are proposed. The construction of the entrance, and berm as proposed, as well as any necessary improvements to Sycolin Road will destroy site 44LD1195.

Sites 44LD1326, 1328, 1329 and 1330 - Historic Lower Sycolin Settlement
Archaeological sites 44LD1326, 44LD1328, 44LD1329 and 44LD1330 were identified as part of the 2005 Phase 1 survey and are located within the proposed development area. These sites have been interpreted as late 19th to early 20th century domestic sites representative of a village known as "Lower Sycolin". The Lower Sycolin community was settled by emancipated African Americans sometime after the Civil War. This historic community is still marked by the Sycolin Church and a few frame houses along Sycolin Road.

The consultant has recommended that none of these sites are eligible for listing on the National Register of Historic Places due to the level of ground disturbance around the sites and the fact that only remnants of the homes and outbuildings remain. The proposed development will impact each of these sites. While the individual resources may not be National Register eligible, the history of the historically African American Lower Sycolin community represented by these archaeological sites is compelling and worthy of research for public benefit as called for in Chapter 2, of the Heritage Preservation Plan (*Archaeological Resource Policy 4*).

Recommendations

Site 44LD1195 – Sycolin Pottery
Specific to site 44LD1195, staff recommends that every effort be made to conserve this significant resource in place. This would require the reconfiguration of the proposed access points into the development from Sycolin Road and coordination with VDOT regarding road improvements on this section of Sycolin Road. Future draft proffers should include language which reflects the following mitigation strategies:

1. Conservation of the site must be planned for during construction. To this end, staff recommends that demountable metal fencing (long fence type) be erected around the perimeter of the site to include a minimum 50 foot

buffer on the northern, southern and eastern edges of the demarcated site. Because the boundaries of the site were determined several years ago by The Berger Group in 2006, the known boundaries of the site should be re-located by a professional archaeological consultant or by the County Archaeologist prior to any ground disturbance near the site.

2. This site is eligible for listing in the National Register of Historic Places and a formal nomination to have the site listed is an appropriate next step. National Register nominations are generally prepared by a consultant. Nominations are submitted to the Virginia Department of Historic Resources for consideration. Although listing in the Register is honorific, it would be representative of the level of significance the Sycolin pottery site holds.

3. To ensure that the site is conserved in perpetuity, staff strongly recommends that an easement be placed on the site. There are various organizations that will take such easements, such as the Archaeological Conservancy, a national non-profit organization whose mission is to protect significant archaeological resources in place in perpetuity. The Conservancy has recently acquired a significant prehistoric property in the County.

4. If it is determined that 44LD1195 cannot be conserved, Phase 3 (full data recovery) excavation is warranted. Because of the significance of the pottery site, the scope of work for the Phase 3 should be reviewed and approved by the County Archaeologist prior to commencement of the excavation. Upon completion, the Phase 3 report should be submitted to the County and to the Virginia Department of Historic Resources for archiving.

5. As noted earlier in the referral, Chapter 5 of the Revised General Plan calls for an impact mitigation plan for significant resources identified during the archaeological survey of a property proposed for development. Chapter 2 of the The Heritage Preservation Plan states that research and findings associated with archaeological surveys should be conveyed to the public. In addition to the Phase 3 technical report, staff requests that a discrete, concise narrative history of the site (Including photographs of excavations, artifacts and historic maps) be completed for public education purposes. The narrative history should be given to the County in hard copy and in digital format. A hard copy of the report should be sent to the Thomas Balch Library in Leesburg for the benefit of historians, researchers and the general public.

Sites 44LD1326, 1328, 1329 and 1330 - Historic Lower Sycolin Settlement
The history of the area bounded by Cochran Mill Road, Sycolin Road and Goose Creek is important in the context of post-Civil War reconstruction and African-American history in Loudoun County. Sycolin is one of 30 identified late 19th century historically African American settlements in the County. Staff recommends that the Sycolin settlement, represented by the above archaeological sites, be interpreted for the general public. To mitigate impacts to these sites, staff recommends that a concise, well researched narrative history of the historically African American community of Lower Sycolin be produced for the purposes of public education. Graphics, including historic maps and historic and current photographs should be included. As a point of departure for the research, staff can make available the *Loudoun County African-American Architectural Resources Survey*, prepared for the County by History Matters, LLC in 2004. This report references the community of Sycolin and some of the architectural resources visible from Sycolin Road which relate to that community. Three hard copies of the narrative and one electronic copy should be delivered to the County upon completion.

Coordination with VDHR
The application materials submitted suggest that permits from the Army Corps of Engineers may be required for this project. If this project requires federal permits or will use federal funds, the development proposal will be reviewed by the Virginia Department of Historic Resources (VDHR) per Section 106 of the National Historic Preservation Act of 1966 (as amended). Impacts to resources listed in, or eligible for, the National Register of Historic Places may require mitigation per VDHR. It is important to note that VDHR will make the ultimate determination regarding National Register eligibility for all affected resources. Therefore, no action should be taken to impact or mitigate impacts to any cultural resource on the property until VDHR is consulted.

Staff recommends that the applicant consult with VDHR as early as possible to ensure that any impact mitigation proffered to the County as part of an approval of this application is consistent with VDHR's requirements under Section 106.

Staff is available to meet with the applicant to discuss potential conservation and mitigation strategies for the important resources on this property.

cc: Michael "Miguel" Salinas, AICP, Program Manager, Community Information and Outreach
Julie Pastor, AICP, Director Department of Planning

The Goose Creek Scenic River Advisory Committee

46753 Winchester Drive • Sterling, Virginia 20164-2200
703-430-3668 • GooseCreek2002@msn.com

April 23, 2009

Ms. Judi Birkitt, Project Manager
Loudoun County Planning Department
1 Harrison Street, S.E., 3rd Floor
P.O. Box 7000
Leesburg VA 20177-7000

In re SPEX 2009-0009 & CMPT 2009-0001
Hybrid Energy Park at Stonewall Secure Business Park

Dear Ms Birkitt:

The Goose Creek Scenic River Advisory Board appreciates the opportunity to comment on this application. Since the project has no immediate impact on Goose Creek and its scenic status, we have no comment on this application other than to advise caution concerning any runoff from the project into Sycolin Creek, which feeds Goose Creek.

Please keep us apprised of other referrals and/or information that may affect Goose Creek scenic beauty or water quality in regard to this project. As information is developed, we reserve the right to bring any further comments to your attention.

Sincerely,

Helen E. Casey

Helen E. Casey, Chairman

cc. Goose Creek Scenic River Advisory Committee

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

April 15, 2009

Judi Birkitt
County of Loudoun
1 Harrison Street, S.E.
Leesburg, VA 20175

Re: Stonewall Secure Business Park

Dear Ms. Birkitt:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

DCR reiterates its' comments from September 18, 2008, "According to the information currently in our files, several rare plants, which are typically associated with prairie vegetation and inhabit semi-open diabase glades in Virginia, may occur at this location if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995). In Northern Virginia, diabase supports occurrences of several global and state rare plant species: Earleaf foxglove (*Agalinis auriculata*, G3/S1/NL/NL), Blue-hearts (*Buchnera americana*, G5/S1S2/NL/NL), Purple milkweed (*Asclepias purpurascens*, G5/S2/NL/NL), Downy phlox (*Phlox pilosa*, G5T5/S2/NL/NL), Stiff goldenrod (*Oligoneuron rigidum var. rigidum*, G5T5/S2/NL/NL), and Marsh hedgenettle (*Stachys pilosa var. arenicola*, G5T4/S1/NL/NL).

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at (804) 371-6206 to discuss arrangements for field work. A list of other individuals who are qualified to conduct inventories may be obtained from the USFWS."

Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

S. Rene' Hypes
Project Review Coordinator

Literature Cited

Rawinski, T.J. 1995. Natural communities and ecosystems: Conservation priorities for the future. Unpublished report for DCR-DNH.

The Town of
Leesburg,
Virginia

25 West Market Street ▪ P.O. Box 88 ▪ 20178 ▪ 703-777-2420 ▪ Metro: 703-478-1821 ▪ FAX: 703-771-2727 ▪ www.leesburgva.gov

November 2, 2009

Judi Birkitt, Project Manager
Loudoun County Department of Planning
1 Harrison Street, SE
P.O. Box 7000
Leesburg, VA 20177

RE: **Referral request for a rezoning, ZMAP 2009-0005, a special exception, SPEX 2009-0009 and a Commission Permit, CMPT 2009-0001, for a GEP/S Hybrid Energy Park, to allow a utility generating plant and transmission facility.**

Dear Ms. Birkitt:

We are in receipt of the referral request for first submission of the above referenced project, and we are pleased with the opportunity to provide you with the following comments:

Recommendation: The Town believes that through this second submittal application we are able to garner a positive recommendation. This recommendation is based on the information we have received to date, and there are some issues that we would ask be addressed through further review of the project. The issues that the Town feels need to be addressed are indicated below.

Description of the Proposal: The applicant is proposing a rezoning, special exception and commission permit for the development of a utility generating plant and transmission facility on 90 acres south of Sycolin Creek and east of Sycolin Road. The applicant is proposing to build a primary and peak demand facility including up to a 600 megawatt combined cycle gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power natural gas turbines, and a 1 megawatt solar array.

The energy plant is proposed to be located south of Leesburg, generally in the vicinity of the intersection of Sycolin Road and Cochran Mill Road. Access is indicated to be provided from Gant Lane, off of Cochran Mill Road. The rezoning entails a proposed change from TR-10 to MR-HI, Mineral Resource-Heavy Industry. The site is in the Transition Zone of the Loudoun County Revised General Plan.

Analysis and Recommendations: The following analysis is based on comments from several Town departments. The complete Town departmental comments are attached. The review was

undertaken with regard to a number of subject areas, including land use, utilities, and environmental. This review is based on "GEP/S Hybrid Energy Park: ZMAP 2009-0005/SPEX 2009-0009/CMPT 2009-0001" (4 sheets, last dated August 18, 2009), "Statement of Justification: GEP/S Hybrid Energy Park" (last dated August 20, 2009), and a letter from Walsh Colucci Lubeley Emrich & Walsh responding to referral agency comments (dated August 20, 2009).

It should be noted that the application does not appear to specify any design criteria, including the height of any stacks or venting apparatus. The applicant has stated that the stacks would not exceed approximately 130 feet in height, but there is no commitment to that within the application. This is an area of concern for the Town, in addition to the types and quantities of materials vented from said stacks, and this needs to be addressed with subsequent submittals.

Land Use:

The majority of the site of the proposed zoning amendment, special exception and commission permit lies beyond the Leesburg joint planning area (referred to in the Town Plan as the UGA/JLMA). Nevertheless, the site is immediately adjacent to the joint planning area, and the proposed development could have substantial impacts on the area and the Town.

Conclusions:

1. **Transition Policy Area.** Leesburg's planning has relied on development to be in accordance with the Revised General Plan's Transition Policy Area designation for the area south of the Town. The proposal does not appear to comply with the policies for the Transition Policy Area. An intensive, industrial use is not consistent with the clusters, rural villages, or nonresidential uses envisioned for the Transition Policy Area (Revised General Plan, Transition Policy Area, Community Design policies 2 and 15, pp. 8-6 and 8-7); and it seems far from the "more rural character" (RGP, p. 8-5) envisioned for the Lower Sycolin Subarea of the Transition Policy Area.

   The applicant's response to our comments on the first submission argues that the environmental aspects of the development make it consistent with the Transition Policy Area. However, while the environmental protections that are proposed suggest that the development will minimize environmental impacts, those protections would be expected of any development in the Transition Policy Area and do not make the case that the proposed industrial use is the type of development that is consistent with the land use policies for that part of the county.

   It would appear reasonable to consider the applications if the applicant can make an adequate case that this site is uniquely suitable for this use and that a suitable site in the Suburban Policy Area does not exist (perhaps even if the impacts of the proposal somewhat exceed those outlined in the Revised General Plan). For example, the application relies heavily on the presence of gas and electric distribution lines on the site. However, gas and electricity are available in many places in the Suburban Policy Area, and the justification statement

would be stronger if it explained why those places are not appropriate for a proposed energy plant. Nevertheless, such a discussion would only suggest that an amendment to the Revised General Plan's designation for the site should be considered, but not that the applications in fact are consistent with the policies for the Transition Policy Area.

Comprehensive planning staff agrees with the applicant that natural gas is better for the environment than other fossil fuels (it produces the least carbon dioxide while producing more energy); that the solar array is better than fossil fuels (it is a renewable source that does not produce green house gases); that the combined cycle technology is better than single cycle (it is more efficient and therefore emits less green house gasses to produce the same amount of electricity); and that distributed electric generators are better than large, central ones (less electricity is lost during transmission because of shorter distances between the generator and users). If the proposed energy plant can replace an existing coal plant, as suggested in the statement of justification, it will have even greater environmental benefits. The proposed energy plant thus helps to achieve the energy savings and air quality benefits called for in objective 6 of the natural resources element of the Town Plan. The proposed facility also is consistent with several recommendations of the Virginia Energy Plan, including increasing in-state generation of energy and using a heat recovery system.

In order to increase the environmental benefits of the proposed energy plant and business park, the applicant should consider agreeing to compliance with the Gas Star program (reduce natural gas leakage), Leadership in Energy and Environmental Design (LEED) for all buildings on the site, and Energy Star for all appliances and equipment, as well as developing a transportation demand management program for all occupants of the site and encouraging energy efficient vehicles for businesses locating in the park.

2. **Transportation.** The Town Plan's Road Network Policy Map (which coincides with the Revised Countywide Transportation Plan) calls for Cochran Mill Road (Rt 653) to be a 4-lane, undivided through collector. According to the Town Plan, Cochran Mill Road should be relocated out of the floodplain of Sycolin Creek by crossing Sycolin Creek and traversing the site before intersecting Sycolin Road. The proposed plan does not accommodate this road or suggest a feasible alternative location.

Traffic and Transportation:

The proposed facility would accommodate 25 full time employees over a three shift work day. The study area intersections of Cochran Mill Road/Gant Lane and Cochran Mill Road/Sycolin Road will operate with levels of service "B" or better during 2014 build-out conditions. Trips generated by the proposed Hybrid Energy Park will have a minimal impact on the study area network and can be accommodated by the existing infrastructure.

Also, it is recommended that Cochran Mill Road and Gant Lane be reconstructed to meet current VDOT standards as the current roads are not constructed to support the proposed truck traffic.

Utilities:

One of the main issues surrounding this application is that of the statements related to the Town of Leesburg providing effluent from our treatment facility to be utilized by the power facility. Any action regarding this part of the proposal must be endorsed by the Town Council.

Conclusions:

1. It is the intent of the applicant to utilize treated effluent from the Town's Water Pollution Control Plant (WPCP) for the steam generation. We recommend the applicant begin their negotiations with the Town Council to make sure the feasibility of this proposal and the concurrence of Town Council in granting this request.

2. The use of Town's effluent for the generation of steam will produce residual discharges that are not desirable for discharge to the Town's treatment works and must therefore be treated on site for reuse or discharge to the treatment works. A paragraph explaining this procedure needs to be added to the documents.

3. Does the use of treated wastewater in anyway influence or impact the air quality report presented with this application? This report does not discuss this matter in detail.

4. The pipeline routes for transporting the treated waste water from Town's facility has not been identified as part of this application.

5. Can the current site layout accommodate the provision for a treatment facility indicated under item 2?

Environmental:

On April 28, staff provided comments on the first submission of this proposal. The comments were generally supportive of the proposal based on the overall environmental benefit of the proposed combined cycle natural gas power plant which provides electricity at nearly twice the efficiency of coal powered plants while producing less than one-half of the carbon dioxide, and much smaller fractions of other greenhouse gases (NO_x and SO_2). While generally supportive of the proposal, questions were raised related to issues such as air and water discharges, lighting, and noise. The applicant's second submission addresses most of these issues to the extent that they can be at this stage although some questions remain. Staff recommends the applicant clarify the following issues:

1. The application states that the facility will use up to 5 MGD of treated water from the Leesburg Water Pollution Control Facility. The statement of justification says that up to 1 MGD of the water will be recaptured and reused in the process and that some of the other steam ***may*** be used for combined heat and power. Combined heat and power is wise use of resources as it puts to use what would otherwise be considered "waste" steam

for heating and cooling. Under what conditions will the applicant implement a combined heat and power system? If not implemented, what happens to the other 4MGD of water used in the process? Will it be released as waste water vapor through the emission stacks? I suggest the applicant provide a water use budget diagram that shows where the different portions of the used water goes. Also, I recommend that the applicant work with the County to implement a combined heat and power system.

2. The application states that the facility will "eliminate 56 tons of nutrients and solids from the Potomac River and ultimately the Chesapeake Bay" through use of Leesburg's treated wastewater. Please explain the process by which these nutrients are captured or converted at the electric plant and what happens to them. Are they discharged into the air? Transported to a landfill?

Summary:

Town staff is generally supportive of this application. However, based on potential impacts the facility may have on Leesburg residents, we would request that County staff address the following issues, as outlined within this memo:

1. Provide an explanation/analysis of the project's consistency with the Revised General Plan.

2. Address the relocation of Cochran Mill Road.

3. Establish a requirement that Cochran Mill Road and Gant Lane be built to VDOT specs to handle the volume of truck traffic expected.

4. Address the items from Utilities related to the need for Town effluent.

5. Address all outstanding environmental issues as outlined herein.

In addition to the above items, it should be noted that while the Air Impact study indicates that the project meets or exceeds all applicable federal air quality standards, it is still a concern for Town of Leesburg residents as to the impact this plant will have. We encourage County environmental staff to be diligent in its review and approval of this facility, and ensure that that the information that has been provided regarding environmental impacts is thoroughly vetted in order to ensure the safety of all residents in the vicinity of this proposed facility.

Thank you for the opportunity to provide these comments. We look forward to working with County staff on this application in order to ensure the project's potential impacts are mitigated to the furthest extent possible. If you require anything further, please let me know.

Sincerely,

Scott E. Parker, AICP
Assistant to the Town Manager
Town of Leesburg

cc: Town Council
Planning Commission
Town Manager

Attachments:
1. TOL agency referral; Comprehensive Planning (David Fuller)
2. TOL agency referral; Utilities Department (Aref Etemadi)
3. TOL agency referral; Environmental (Irish Grandfield)
4. TOL agency referral; Traffic and Transportation
5. Applicant's Statement of Justification

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF PLANNING, ZONING & DEVELOPMENT

TO: SCOTT PARKER, ASSISTANT TO TOWN MANAGER

DATE: NOVEMBER 4, 2009

FROM: COMPREHENSIVE PLANNER

RE: ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001, GEP/STONEWALL HYBRID ENERGY PARK, SECOND SUBMISSION

RECOMMENDATION: Staff supports the approval of the special exception and commission permit applications, provided the issue with the relocation of Cochran Mill Read is addressed. However, we would appreciate a complete explanation of the county's decision about the project's consistency with the Revised General Plan.

ISSUE: Should the town support county approval of a hybrid energy plant south of Leesburg?

BACKGROUND: The applicant is proposing a special exception and a commission permit for the development of a utility generating plant and transmission facility on 87 acres south of Sycolin Creek and east of Sycolin Road. The applicant is proposing to build a primary and peak demand facility including up to a 586-megawatt combined cycle gas turbine-waste water energy plant, up to two 197-megawatt simple cycle peaking power natural gas turbines, and a 1 megawatt solar array. The site is in the Transition Policy Area of the Loudoun County Revised General Plan.

This review is based on "GEP/S Hybrid Energy Park: ZMAP 2009-0005/SPEX 2009-0009/CMPT 2009-0001" (4 sheets, last dated August 18, 2009), "Statement of Justification: GEP/S Hybrid Energy Park" (last dated August 20, 2009), and a letter from Walsh Colucci Lubeley Emrich & Walsh responding to referral agency comments (dated August 20, 2009).

Analysis: The majority of the site of the proposed zoning amendment, special exception, and commission permit lies beyond the Leesburg joint land management area (referred to in the Town Plan as the UGA/JLMA). Nevertheless, the site is immediately adjacent to the joint planning area, and the proposed development could have substantial impacts on the area and the Town.

1. **Transition Policy Area.** Leesburg's planning has relied on development to be in accordance with the Revised General Plan's Transition Policy Area designation for the area south of the Town. The proposal does not appear to comply with the policies for the Transition Policy Area. An intensive, industrial use is not consistent with the clusters, rural villages, or nonresidential uses envisioned for the Transition Policy Area (Revised General Plan, Transition Policy Area, Community Design policies 2 and 15, pp. 8-6 and 8-7); and it seems far from the "more rural character" (RGP, p. 8-5) envisioned for the Lower Sycolin Subarea of the Transition Policy Area.

   The applicant's response to our comments on the first submission argues that the environmental aspects of the development make it consistent with the Transition Policy Area. However, while the environmental protections that are proposed suggest that the development will minimize environmental impacts, those protections would be expected of any development in the Transition Policy Area and do not make the case that the proposed industrial use is the type of development that is consistent with the land use policies for that part of the county.

   It would appear reasonable to consider the applications if the applicant can make an adequate case that this site is uniquely suitable for this use and that a suitable site in the Suburban Policy Area does not exist (perhaps even if the impacts of the proposal somewhat exceed those outlined in the Revised General Plan). For example, the application relies heavily on the presence of gas and electric distribution lines on the site. However, gas and electricity are available in many places in the Suburban Policy Area, and the justification statement would be stronger if it explained why those places are not appropriate for a proposed energy plant. Nevertheless, such a discussion would only suggest that an amendment to the Revised General Plan's designation for the site should be considered, but not that the applications in fact are consistent with the policies for the Transition Policy Area.

   Comprehensive planning staff agrees with the applicant that natural gas is better for the environment than other fossil fuels (it produces the least carbon dioxide while producing more energy); that the solar array is better than fossil fuels (it is a renewable source that does not produce green house gases); that the combined cycle technology is better than single cycle (it is more efficient and therefore emits less green house gasses to produce the same amount of electricity); and that distributed electric generators are better than large, central ones (less electricity is lost during transmission because of shorter distances between the generator and users). If the proposed energy plant can replace an existing coal plant, as suggested in the statement of justification, it will have even greater environmental benefits. The proposed energy plant thus helps to achieve the energy savings and air quality benefits called for in objective 6 of the natural resources element of the Town Plan. The proposed facility also is consistent with several recommendations of the Virginia Energy Plan, including increasing in-state generation of energy and using a heat recovery system.

   In order to increase the environmental benefits of the proposed energy plant and business park, the applicant should consider agreeing to compliance with the Gas Star

program (reduce natural gas leakage), Leadership in Energy and Environmental Design (LEED) for all buildings on the site, and Energy Star for all appliances and equipment, as well as developing a transportation demand management program for all occupants of the site and encouraging energy efficient vehicles for businesses locating in the park.

2. **Transportation.** The Town Plan's Road Network Policy Map (which coincides with the Revised Countywide Transportation Plan) calls for Cochran Mill Road (Rt 653) to be a 4-lane, undivided through collector. According to the Town Plan, Cochran Mill Road should be relocated out of the floodplain of Sycolin Creek by crossing Sycolin Creek and traversing the site before intersecting Sycolin Road. The proposed plan does not accommodate this road or suggest a feasible alternative location.

David Fuller

David Fuller, AICP

The Town of Leesburg
INTEROFFICE MEMORANDUM
DEPARTMENT OF UTILITIES

To: Scott Parker, AICP

From: *AE* Aref Etemadi, Deputy Director

Date: October 6, 2009

Subject: Green energy Partners/Stonewall Hybrid Energy Plant
SPEX 2009-0009, ZMAP 2009-0005 & CMPT 2009-0001
Second Submission

We have reviewed the aforementioned Loudoun County referral and offer the following comments:

1. It is the intent of the applicant to utilize treated effluent from the Town's Water Pollution Control Plant (WPCP) for the steam generation. We recommend the applicant begin their negotiations with the Town council to make sure the feasibility of this proposal and the concurrence of Town council in granting this request.
2. The use of town's effluent for the generation of steam will produce residual discharges that are not desirable for discharge to the Town's treatment works and must therefore be treated on site for reuse or discharge to the treatment works. A paragraph explaining this procedure needs to be added to the documents.
3. Does the use of treated wastewater in anyway influence or impact the air quality report presented with this application? This report does not discuss this matter in detail.
4. The pipeline routes for transporting the treated waste water from Town's facility has not been identified as part of this application.
5. Can the current site layout accommodate the provision for a treatment facility indicated under item 2?

c: Randolph W. Shoemaker, Director of Utilities
Steve Cawthron, Manager WPCF

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF PLANNING, ZONING & DEVELOPMENT

TO: SCOTT PARKER, ASSISTANT TO THE TOWN MANAGER

DATE: NOVEMBER 4, 2009

FROM: SENIOR ENVIRONMENTAL PLANNER

RE: GEP/S HYBRID ENERGY PLANT 2nd REFERRAL.

RECOMMENDATION: We recommend that the Town support approval of the natural gas fueled primary and peak demand electric power generating plant.

ISSUE: Should the Town support County approval of a hybrid energy plant south of Leesburg?

BACKGROUND: Green Energy Partners/Stonewall LCC is requesting Special Exception and Commission Permit approvals from Loudoun County for development of a electricity generating plant and transmission facility adjacent to Gant Lane south of Leesburg. The site is strategically located for a power plant with two interstate natural gas transmission lines and three 230KV Dominion Virginia circuits traversing the property. The applicant proposes to build a primary and peak demand facility with 586 megawatt hybrid combined cycle gas-turbine/water energy plant, two 197 megawatt simple cycle peak natural gas turbines, and a 1 megawatt solar array. The combined cycle facility will use up to five million gallons of water. The applicant is requesting Leesburg to consider a proposal to supply the water from treated wastewater from the Town's Wastewater Pollution Control facility.

On April 28, I provided comments on an earlier submission of this proposal. My comments were generally supportive of the proposal based on the overall environmental benefit of the proposed combined cycle natural gas power plant which provides electricity at nearly twice the efficiency of coal powered plants while producing less than one-half of the carbon dioxide, and much smaller fractions of other greenhouse gases (NO_x and SO_2). While generally supportive of the proposal, I raised questions related to issues such as air and water discharges, lighting, and noise. The applicant's second submission addresses most of these issues to the extent that they can be at this stage although some questions remain. I recommend the applicant clarify the following issues:

1. The application states that the facility will use up to 5 MGD of treated water from the Leesburg Water Pollution Control Facility. The statement of justification says that up to 1 MGD of the water will be recaptured and reused in the process and that some of the other steam ***may*** be used for combined heat and power. Combined heat and power is wise use of resources as it puts to use what would otherwise be considered "waste" steam for heating and cooling. Under what conditions will the applicant implement a combined heat and power system? If not implemented, what happens to the other 4MGD of water used in the process? Will it be released as waste water vapor through the emission stacks? I suggest the applicant provide a water use budget diagram that shows where the

different portions of the used water goes. Also, I recommend that the applicant work with the County to implement a combined heat and power system.

2. The application states that the facility will "eliminate 56 tons of nutrients and solids from the Potomac River and ultimately the Chesapeake Bay" through use of Leesburg's treated wastewater. Please explain the process by which these nutrients are captured or converted at the electric plant and what happens to them. Are they discharged into the air? Transported to a landfill?

SUMMARY: The proposed power plant facility has the potential to reduce impacts on the regional and global environment. While I do not anticipate that these issues will substantially impact the Town or its citizens, it would be helpful if the applicant provide a full explanation of where the nutrients, solids, and "waste" water from the facility are going.

James P. "Irish" Grandfield, AICP

Cc: Susan Berry Hill, Director P&Z

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF PUBLIC WORKS

TO:	Scott E. Parker, AICP Assistant to the Town Manager
FROM:	Michael K. Bomgardner, Engineer
DATE:	October 15, 2009
RE:	Green Energy Partners Stonewall (GEP/S) Hybrid Energy Park ZMAP 2009-0005, SPEX 2009-0009 and CMPT 2009-0001
SUBJECT:	Referral comments, First Submission

Recommendation:

The Traffic Management Division of the Department of Public Works has no objection to the Department of Planning and Zoning forwarding our comments to the County of Loudoun Department of Planning.

Background:

The applicant is proposing a rezoning, special exception and a commission permit for the development of a natural gas and solar utility generating plant and transmission interconnection facilities on approximately 90.5 acres. The subject property is located on the north and east sides of Route 267 (Dulles Greenway), east of Route 643 (Sycolin Road), south of Route 653 (Cochran Mill Road) and south and west of Gant Lane (Route 652). The site would have access provided by two ingress/egress points on Gant Lane. This development is assumed to be completely built and occupied in a single phase by 2014. The

traffic impact analysis prepared by Patton Harris Rust & Associates includes an analysis of the roadway network in the build-out year in 2014. The development would generate a total of 89 daily vehicular trips.

Information received by DPW on September 16, 2009:

1. Revised Statement of Justification	8-20-2009
2. Rezoning/Special Exception/Commission Permit Plat	July, 2009
3. Review Comment Response Letter	8-20-2009
4. Draft Proffer Statement	8-20-2009
5. Traffic Study	9-3-2009
6. Draft Conditions of Approval	8-20-2009
7. Air Quality Study	July 1, 2009

Analysis and Conclusions:

Based upon the information reviewed, the Traffic Management Division has no objection to the Department of Planning and Zoning forwarding our comments to the County of Loudoun Department of Planning.

The Traffic Management Division of the Department of Public Works findings is as follows:

The proposed facility would accommodate 25 full time employees over a three shift work day. The study area intersections of Cochran Mill Road/Gant Lane and Cochran Mill Road/Sycolin Road will operate with levels of service "B" or better during 2014 build-out conditions. Trips generated by the proposed Hybrid Energy Park will have a minimal impact on the study area network and can be accommodated by the existing infrastructure.

Also, it is recommended that Cochran Mill Road and Gant Lane be reconstructed to meet current VDOT standards as the current roads are not constructed to support the proposed truck traffic.

Please do not hesitate to contact me with any questions or if I can be of any further assistance.

Michael K. Bomgardner
Engineer

cc: Thomas A. Mason, P.E., Director of Public Works
Susan Berry-Hill, Director of Planning and Zoning
William R. Ackman, Jr., P.E., Director of Plan Review
Lee Phillips, Project Manager of Plan Review
David Fuller, Comprehensive Planner
Calvin K. Grow, P.E., Transportation Engineer

STATEMENT OF JUSTIFICATION
GEP/S HYBRID ENERGY PARK

Zoning Map Amendment Petition,
Special Exception and Commission Permit Applications
ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001
February 27, 2009
Revised July 31, 2009
Revised August 20, 2009

I. INTRODUCTION

Green Energy Partners/Stonewall LLC ("GEP/S") the Applicant is proposing a rezoning, special exception and a commission permit for the development of a natural gas and solar utility generating plant and transmission interconnection facilities on approximately 90.5 acres. The parcels that are subject to the proposed rezoning, special exception and commission permit applications include Loudoun County Tax Map 60, Parcels 38 (42.47 acres) and 38A (.32 acre). (MCPI 193-38-4362 and 193-49-0539) owned by Evergreen Loudoun – One Limited Partnership; Loudoun County Tax Map 61, Parcel 12 (30.89 acres) (MCPI 193-39-3665) owned by John A. Andrews, Trustee; Loudoun County Tax Map 60, Parcel 39 (4.88 acres of 59.94 acres)(MCPI 194-48-6020) and Loudoun County Tax Map 61, Parcel 14 (11.96 acres) (MCPI 193-29-6778) owned by LTI Limited Partnership, collectively the "Subject Property" consisting of a total of approximately 90.5 acres. A portion of the Subject Property (Tax Map 60, Parcels 38A, 39 and 41) is zoned Transitional Residential -10 ("TR-10") and the remainder of the Subject Property (Tax Map 60, Parcel 38 and Tax Map 61, Parcel 12) is split zoned TR-10 and Joint Land Management Area – 20 ("JLMA-20").

The Subject Property is located on the north and east sides of the Route 267 (Dulles Greenway), east of Route 643 (Sycolin Road), south of Route 653 (Cochran Mill Road) and south and west of Gant Lane (Route 652) in the Catoctin Election District of Loudoun County, Virginia. Sycolin Creek borders the Subject Property to the north and a portion of the Subject Property along Sycolin Creek is zoned JLMA – 20. There are a few scattered residential uses and vacant land along Cochran Mill Road. Property to the east is owned by Luck Stone Corporation and currently zoned TR-10 and proposed to be rezoned to Mineral Resource – Heavy Industry ("MR-HI") for quarry uses (ZMAP 2009-0003). The property to the southeast is currently zoned TR-10 and proposed to be rezoned to MR-HI (ZMAP 2009-0004) by Loudoun Water for a potable water treatment facility. There a few homes on land zoned TR-10 along Sycolin Road to the west of the Subject Property and these homes are 2,000 feet away from the proposed Hybrid Energy Park. Traversing the Subject Property are two 230 kilovolts ("kV") and one 500kV Dominion Virginia Power high voltage transmission circuits on two separate 130 foot tall (approximately) aerial structures located within a 250 foot wide easement.

There are two interstate natural gas transmission lines owned by Columbia Gas and Dominion and located within a 30 foot wide easement traversing the Subject Property in a north/south direction parallel to the electrical transmission lines. These interstate natural gas

lines are unique in that these lines transport gas that originates in two separate areas of the United States, which is particularly advantageous in natural disasters such as hurricanes when gas supplies may be limited or interrupted. Gas from one of the lines originates in the Ohio Valley and the other from the Gulf Coast. The gas lines also connect to TRANSCO, the major east coast gas transportation line, and the Cove Point, Maryland LNG (Liquid Natural Gas) terminal port. A utility generating facility requires a primary and secondary source of fuel. The two natural gas lines provide a reliable source so other types of fuels will not be utilized as a back up source. The Subject Property contains a mixture of open fields and a combination of evergreen and deciduous forested areas. An abandoned barn and the foundation of a house, along with two farm ponds are located upon the Subject Property.

II. BACKGROUND

The State of Virginia is projected to face up to 4,000 megawatts ("MW") power shortage over the next ten years and approximately 70% or 2,800 MW of the shortage will be in the Northern Virginia region. Electric energy production in the Northern Virginia region is limited and severe transmission constraints and congestion in the Northern Virginia power grid inhibits the orderly distribution of power in the region which may cause rolling brownouts and blackouts and power outages in the near future. Dominion Virginia Power has said brownouts could start as early as 2011, in Northern Virginia. Electric power is distributed within Virginia by an electric power transmission system. The transmission system consists of high-voltage, high-capacity transmission components, including 765kV transmission lines in the western Virginia service area of American Electric Power and 230kV and 500kV transmission lines in other parts of the state.[1] A network of smaller, lower voltage lines distributes the power from the larger power lines and individual generating facilities to consumers in urban and rural areas.[2] The power lines traversing the Subject Property are two 230kV and one 500kV.

Pennsylvania-Jersey-Maryland Interconnection Market (PJM), (the local Regional Transmission Organization (RTO)) proposes a super grid concept of massive transmission projects connecting large areas within the mid-Atlantic region. However, the report[3] that analyzed the massive August 2003 transmission grid outage clearly showed that overall management of this large grid has flaws that require human intervention and reaction in time to react in time to prevent rolling blackouts. A super grid of long-distance transmission lines is less important in the overall picture because of a new drive for energy efficiency, conservation, and most importantly more local control and generation closer to load centers. The idea of local control (islanding) is not new, and involves effectively managing the power supply and reliability within a smaller area.

[1] 2009 Virginia Center for Coal and Energy Research website: www.energy.vt.edu/vept. Virginia Energy Patterns and Trends, Virginia Electric Energy
[2] Ibid.
[3] U.S.-Canada Power System Outage Task Force. "Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations", April 2005

Northern Virginia and Loudoun County are leaders in the high technology industry and are facing escalating reliability problems with electrical power generation and transmission which has resulted in threats of rolling blackouts, appeals for voluntary curtailment by consumers, and proposals to construct numerous transmission lines throughout Loudoun County. Resolving electricity reliability problems in a crisis atmosphere undermines customer confidence and is almost always unnecessarily expensive with cost frequently driven by areas other than the appropriate fuel and technology.

Electricity is an integral part of life and electric system reliability is indispensable to support residential, commercial, industrial and governmental functions. Lack of reliable electricity is not just an inconvenience, but it creates an economic loss. Loudoun County has become one of the prime locations for internet related companies. These internet related companies include numerous data centers that create high value tax revenues with few employees. With Loudoun County's foresight the issue of electrical self sufficiency and security in the future would allow for the continuation of the expansion of these high value tax paying companies to locate within Loudoun County.

Power plants are generally long-lived investments; the majority of the existing generating capacity in Virginia is 30 or more years old. Because of the expected retirement of many aging plants in the existing fleet, growth of the information economy and economic growth, and the forecasted growth in electricity demand, America faces a significant need for new but clean electric power generation. North America's world-class electric system is facing several serious challenges. Major questions exist about its ability to continue providing citizens and businesses with clean, reliable, and affordable energy services. The term transmission grid congestion is routinely used around large load centers. Congestion within the transmission grid are simply bottlenecks in the electrical network that will, if uncorrected, interfere with regional economic development and growth. This congestion becomes amplified if one of the regional long distance transmission lines should fail during a peak load period. The information economy requires a reliable, secure, and affordable electric system to grow and prosper. Unless substantial amounts of capital are invested over the next several decades in new generation, transmission, and distribution facilities, service quality will likely degrade and costs will go up[4]. We have all heard Dominion Virginia Power forecasting potential outages and escalating costs. The local community needs to be a key player and exhibit active control.

Energy prices are on the rise, Northern Virginia Electric Cooperative ("NOVEC") has increased 62% in power costs from 2002 to 2008, and Dominion Virginia Power has received approval and has implemented an increase of 18% in 2008, and has a case pending to further increase rates.

Approximately 90% of the electrical energy generated by utilities in Virginia is produced from coal and nuclear sources. Production and combustion of coal results in the largest environmental impacts of all fossil fuels. Technology for capturing and sequestering carbon

[4] US Department of Energy Office of Electrical Delivery and Energy Reliability, GridWorks. "Overview of the Electric Grid" http://www.energistics.com/gridworks.grid.html

dioxide is expensive and unproven. Natural gas used for electrical power generation emits roughly 50% the amount of greenhouse gas (CO2) per unit of power produced as compared to coal, and 15-20% less than oil. Natural gas has an additional advantage over coal when used in highly efficient combined cycle gas turbines,[5] such as those proposed for the GEP/S Hybrid Energy Park. The proposed Hybrid Energy Park will provide the means to produce electric power in a clean and efficient manner.

During congressional testimony, James Hansen, a noted climatologist and Director of NASA's Goddard Institute for Space Studies, told lawmakers that "phasing out the use of coal except where carbon is captured . . . is the primary requirement for solving global warming".[6] Carbon capture technology is not expected to be commercially available for many years. The Environmental Protection Agency data on individual coal-fired generating units found that in 2020, 68% of the 1,041 total coal-fired, electric-generating units in the eastern half of the U.S. will still lack scrubbers for removal of sulfur dioxide or advanced nitrogen oxides emissions controls.[7] In Loudoun County, the general movements of coal generation emissions are carried by the wind from the west through the County.

In-state electric-power generation is far from sufficient to satisfy the State's consumption. On average only 80% of the electrical energy used by Virginia consumers is generated in-state. Approximately 20% is imported from out-of-state generators on power transmission lines to supply Virginia residents and businesses[8]. There are electrical loses due to line resistance when transporting power from other areas.

Dominion Virginia Power received permission in March of this year from the Virginia State Corporation Commission ("SCC") to build a new 580 MW electric generating facility (natural gas with oil as a backup source) in Buckingham County, Virginia. The Richmond Times-Dispatch published on March 28, 2009, reported that Dominion Virginia Power also received permission to build a 230kV transmission line that will run from the generating station to the existing Bremo electricity substation in Fluvanna County, Virginia. In its order, the SCC said Dominion Virginia Power needs new generating capacity in its Virginia service zone to meet growing energy demand and changing system conditions. New generation within the Dominion service zone provides a greater certainty that additional capacity will be available as needed, rather than that provided by existing resources within or outside of the service zone. Mark F. McGetttrick, president and chief executive officer of Dominion Generation, which will operate the Buckingham County plant, stated "We are pleased with the decision and the SCC's recognition that new generation is needed in Virginia." Virginia imports more electricity than any other state except for California and an over-reliance on imports is inconsistent with the needs of our customers and the goals of the Virginia Energy Plan. Demand for the company's electricity is projected to grow by about 4,000 MW during the next decade.

[5] Virginia Chapter Sierra Club, "The Citizens Energy Plan for Virginia", 2007.
[6] Northern Virginia Magazine. "Plant Life" by Travis Hicks, January 2009.
[7] NPR.org. "U.S. Power Plants Slow to Clean Up Their Act" by Elizabeth Shogren, August 20, 2006.
[8] Ibid.

To address the growing demand for electricity, the Applicant is proposing to build a Hybrid Energy Park with nominal output of approximately 981 MW that will provide year-round primary (or intermediate load) power, as well as peak power during periods of highest demand typically in the summer and winter months. Primary power will be provided by a combined cycle energy facility utilizing two natural gas fueled combustion turbines and one steam turbine producing approximately 586 MW at ISO (ISO-International Organization for Standardization) conditions of 59°F and 60% relative humidity. Peaking power will be provided by two natural gas fueled simple cycle combustion turbines producing approximately 197 MW each at ISO conditions. In addition, the facility will include a solar array of up to 1 MW. The actual output of the combined cycle and simple-cycle combustion turbine units depends on the ambient temperature, with the output increasing as the temperature decreases. The actual output may also vary depending upon the equipment manufacturer selected. The solar array, combined cycle and simple-cycle generating facilities will provide a dedicated and reliable source of power for the regional electrical grid covering our immediate area. Power generated onto a transmission grid takes the path of least resistance seeking load, and Northern Virginia is an obvious major load center. Additionally, the Hybrid Energy Park will help attract business and high tech industry uses which will be provided with a redundant, efficient and reliable source of energy that is necessary for high tech and data center reliability.

The Hybrid Energy Park facilities are proposed to include a water-cooled system utilizing treated effluent from the Leesburg wastewater treatment plant which is currently piped into the Potomac River. Based upon the hours per day of operation, the Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water. This process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Upper Potomac River Basin that feeds into the Chesapeake Bay from the Leesburg wastewater treatment plant. This process will be the first one of its type in the Upper Potomac River Basin and will be a prime example of being able to show local governments ability to help clean up the Chesapeake Bay. The Applicant is having discussions with the Town of Leesburg to use the waste water effluent from the Leesburg wastewater treatment plant. The Hybrid Energy Park plans to treat, re-circulate, and reuse all the cooling water, thus nearing zero discharge. Only in a maintenance situation will any water used in the process be returned to the Leesburg wastewater treatment plant. Even though the water would be clean enough to be discharged into the Potomac River, it will not be released on site. As a second alternative, he Applicant is discussing with Loudoun Water the use of reservoir water as a back up or secondary source of cooling water. A third alternative is the use of an air cooled system.

There is a proposal for constructing a controversial $1.8 billion overland power line to import power into Northern Virginia from several coal powered plants west and outside of the region due to the lack of electric generating facilities in this area. According to studies by the RW Beck Company, a hybrid energy facility such as this at the proposed location will relieve congestion of the regional power grid and will meet the future demand for power in the region. GEP/S has a viable solution for the long term economic health, security and prosperity of our region. GEP/S has the best location, the cleanest most efficient and proven modern technology for producing clean power, and a process that utilizes natural gas, steam, solar and potentially

wastewater effluent from the Leesburg wastewater treatment plant, contributing to cleaner air and cleaner water in the Potomac River and the Chesapeake Bay.

The enclosed report prepared by PowerGEM titled "Leesburg Generation Study" dated July 7, 2009, states "In all of the system models that were studied the Green Energy Partners/Stonewall proposed 980 MW generator resulted in a large reduction (between 18% and 21%) in reliance on external power to be delivered through the transmission system to serve the load in the Loudoun County and Leesburg area." With the addition of the Hybrid Energy Park, the PowerGEM system models assumed reductions in various existing generators that predominantly use coal, such as Mt. Storm, Chesterfield, Possum Point, Chalk Point and Dickerson.

The Subject Property has the necessary existing resources for an energy park with two interstate natural gas transmission pipelines and three high voltage Dominion Virginia Power transmission circuits traversing the Subject Property and proximity to water sources. These transmission lines serve Virginia as part of the PJM RTO which controls the transmission of power in the entire mid-Atlantic region. By utilizing two separate gas supply lines and having direct access to the interstate and regional power grid, the proposed Hybrid Energy Park will make a major contribution to national and regional energy security and make Loudoun County more energy self sufficient while making a substantial contribution to the cleanup of the Chesapeake Bay.

III. PROPOSAL

The Applicant is proposing to rezone the Subject Property to the MR-HI zoning district and is requesting special exception and commission permit approval for a nominal 981 MW utility electric power generating plant and related transmission interconnection facilities uses pursuant to Section 3-1004(AA) of the Zoning Ordinance. More specifically, the Applicant is proposing to build an approximately 586 MW natural gas fueled combined cycle primary power unit, two approximately 197 MW (each) natural gas fueled simple cycle peaking units, and a solar array of up to 1 MW. The Hybrid Energy Park will utilize up to approximately 5 million gallons per day of waste water effluent for cooling water and other process water needs in the production of energy, and may approach zero discharge for return water to the Leesburg wastewater treatment plant.

The primary power unit will incorporate two natural gas fueled combustion turbine generators in a 2x1 configuration. Heat from the combustion turbines is sent through closed heat recovery steam generators ("HRSG") to produce steam which is used to drive a single steam turbine generator. This is called a combined cycle facility, which converts nearly 60% of the energy from the natural gas used to power the turbines into electricity. Coal fired energy plants have an efficiency considerably below that of the modern combined cycle plants. Water or air is used to condense the steam back into water to repeat the process. Excess steam produced by the Hybrid Energy facility could be used to heat and cool several million square feet of data centers and other buildings within a service area. The use of the excess steam to heat and cool buildings

is being utilized throughout the U.S. and Europe, and is referred to as combined heat and power ("CHP"). This type of CHP system with the added benefit of cold water production from the facility could provide the ability to reduce power requirements in future data centers.

The enclosed report prepared by ChmuraEconomics&Analytics, titled "The Economic and Fiscal Benefit of a Proposed Energy Generating Plant in Loudoun County, Virginia" dated July 10, 2009, provides the following information: Preliminary estimates of the total cost of the facility are $829,000,000 and will provide an economic engine for Loudoun County, in construction, jobs, tax revenues and a reliable source of Green energy. After the Hybrid Energy facility is in operation, it is estimated that tax revenues for Loudoun County will be up to $12,000,000 by 2015, and stabilizing by 2019, at over $8,000,000 per year. In addition to these tax revenues, Loudoun County charges an electricity utility tax for residential and commercial uses and that annual tax is estimated to be $1,200,000 per year.

The Issues for Consideration for rezoning and special exception applications contained in Sections 6-1211(E) and 6-1310 of the Zoning Ordinance are addressed in the Attachment to this Statement of Justification.

IV. COMPREHENSIVE PLAN AND COMMISSION PERMIT

The Subject Property is located within the Transition Policy Area and the Lower Sycolin Subarea as specified in Loudoun County's Revised General Plan (RGP). The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide some *unique development opportunities* (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The proposed Hybrid Energy Park, a truly unique development opportunity will provide a compatible transition from suburban to rural land uses while protecting the Luck Stone Quarry from residential development.

More specifically, development of the Hybrid Energy Park supports the following RGP Policies:

TRANSITION POLICY AREA POLICIES

Policy 1: The County will protect the drinking water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs by limiting density in the Lower Bull Run, Middle Goose, and Lower Sycolin subareas.

> The proposed Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water in the generation of electricity. Depending on the hours per year of operation, this unique process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Potomac River that feeds into the Chesapeake Bay

from the Leesburg wastewater treatment plant. Steam produced in the Hybrid Energy Park could be used to heat and cool the data centers and buildings within a service area. The Hybrid Energy Park facilities may approach zero discharge and process water will not be discharged into the stormwater management pond or Sycolin Creek. The entire site drains away from the Goose Creek Reservoir.

The existing pond on site will be improved for stormwater management and water quality. Additionally, surface and stormwater will be regulated under a VPDES permit issued by DEQ. The net effect of the facilities will improve water quality in the Potomac River and Chesapeake Bay.

Policy 2: The County's vision for the Transition Policy Area is for land uses that provide a visual and spatial transition between the suburban development in the east and rural development in the west. The Transition Policy Area will be developed as a unique and innovative blend of rural and suburban development features that fully integrate the elements of the Green Infrastructure, and establish natural open spaces as a predominant visual element and enhancement to the area's river and stream corridors.

Proposed with the Hybrid Energy Park are a River Stream Corridor Overlay District (RSCOD) and the stream valley buffer along Sycolin Creek and floodplain area within the Subject Property. The wetlands areas will not be disturbed, with the exception of improvements to Gant Lane, the site access, and underground utility lines required for the development of the Hybrid Energy Park. The Hybrid Energy Park is a unique development opportunity that is appropriate at this location due to the existence of the natural gas lines, high voltage power lines, water resources, quarry uses, the airport noise impacts, in addition to the proposed rezoning applications by Luck Stone and Loudoun Water. The topography of the area including forested ridges and valleys makes the Hybrid Energy Park less visible from the surrounding area.

Policy 3: Central utilities may be extended to the all subareas of the Transition Policy Area.

The Hybrid Energy Park can be served by public water and sanitary sewer service.

Policy 7: The County will continue to protect the extractive industry (Bull Run and Luck Stone quarries) through a quarry zoning overlay district.

The Hybrid Energy Park is proposed as MR-HI which is compatible with the Luck Stone quarry and expansion which are also zoned or proposed to be rezoned to MR-HI. The Hybrid Energy Park is complimentary and compatible with the operations of a quarry and will protect the quarry from residential encroachment.

TRANSITION POLICY AREA COMMUNITY DESIGN

The densities and open space requirements associated with Villages and Residential Clusters are directly related to specific subareas. The desired density and development pattern for each subarea is provided below.

Lower Sycolin and Middle Goose Subareas

The County envisions that the Lower Sycolin and Middle Goose subareas in the northern portion of the Transition Policy Area will have a base density of one dwelling unit per ten acres in a clustered development pattern. Clusters will be smaller developments supporting between 5 to 25 units, predominantly single-family residential units in individual hamlets. Rezonings to Rural Villages with incorporation of the design criteria for Rural Villages contained in the 1993 Zoning Ordinance at one dwelling unit per three acres will be permitted when 70 percent of the site is maintained as open space. The County envisions that these two subareas will have a more rural character, with lower densities and higher open space requirements than that in the other subareas, to facilitate a transition to the Rural Policy Area. Open spaces will be the dominant visual feature of the landscape.

All new developments within the Landfill Water Service Area District in the Lower Sycolin subarea will be required to be served by central water lines. Central and communal water and wastewater systems are preferred over individual utility systems in all other areas of the Lower Sycolin and Middle Goose subareas. Wastewater systems proposing subsurface or surface discharge will be discouraged in these subareas, given their proximity to the Goose Creek and Beaverdam reservoirs. Alternate sewage disposal systems that ensure a high level of treatment and offer efficiencies in cost, operation and maintenance will be encouraged.

Luck Stone Quarry, located within the Lower Sycolin subarea, will continue to be protected from encroaching residential development. Also, the creation of a buffer and voluntary open space area that is consistent with the RSCOD policies is a priority in this subarea.

> Residential uses within the Subject Property are not appropriate due to the Quarry Overlay District, the Airport Impact Overlay District, and proximity to the two high pressure natural gas lines and the overhead high voltage power lines. Luck Stone Quarry will be protected from encroaching residential development with the Hybrid Energy Park. Additionally, the creation of the proposed RSCOD buffer and the stream valley buffer around the floodplain area and Sycolin Creek are consistent with the RSCOD policies which is a priority in this Subarea.

Policy 2: The County will establish a density of one dwelling unit per ten acres with development clustered on lots up to three acres in the Lower Sycolin and Middle Goose subareas. The County will provide the option to rezone to a Rural Village with a density of one dwelling unit per three acres in accordance with the 1993 Zoning Ordinance. Development will be clustered to maintain a minimum of 70 percent of a site as open space.

Residential uses within the Subject Property are not appropriate due to the Quarry Overlay District, the Airport Impact Overlay District, proximity to the high pressure natural gas lines, secure community water treatment plant and the overhead high voltage power lines and transmission towers. Luck Stone Quarry will be protected from encroaching residential development with the Hybrid Energy Park.

Policy 14: Adding to the creation of the greenbelts and buffer will be credited to the satisfaction of open space requirements.

The RSCOD area proposed within the Hybrid Energy Park will contribute to a greenbelt in addition to the open spaces in the Philip A. Bolen Memorial Park that are adjacent to the Town of Leesburg.

Policy 15: The County will encourage the development of non-residential uses in the Transition Policy Area that provide a transition from suburban to rural. Such uses may include but are not limited to equestrian centers, golf courses, retail nurseries, boarding schools and kennels, large institutions provided they meet specific criteria that address the nature, scale and intensity of the use, market area and design characteristics.

The proposed Hybrid Energy Park provides a unique transition from suburban to rural areas. The unique location provides Loudoun County with secure energy production in an area of forested ridges and valleys that hide the Park from view from the surrounding area protect the natural resources of the Luck Stone Quarry and Goose Creek Reservoir. Situated within the Airport Impact Overlay District and the Quarry Overlay District, residential uses are inappropriate in this location.

Policy 26: The County will protect the Bull Run Quarry in the Lower Bull Run subarea and the Luck Stone Quarry in the Lower Sycolin subarea from incompatible uses by ensuring that encroaching new development does not hinder the quarry operation.

The Hybrid Energy Park will protect the Luck Stone Quarry from residential uses which are not compatible, nor appropriate near the future quarry operations.

GREEN INFRASTRUCTURE POLICIES

The Green Infrastructure Policies outlined in Chapter Five: Green Infrastructure: Environment, Natural and Heritage Resources of the Revised General Plan apply in the Transition Policy Area and are a fundamental component of the land use pattern to be developed. Among the existing Green Infrastructure assets in the policy area are the following:

Geological Resources

The policy area contains concentrations of diabase rock used for the construction of roads and buildings. The Bull Run quarry is an active quarry located at the southern end of the

Transition Policy Area in the Lower Bull Run subarea. The Luck Stone quarry is also an active quarry located at the northern end of the policy area.

The Luck Stone Quarry will be protected from residential development by the Hybrid Energy Park. The transition from diabase to metamorphosed siltstone and sandstone occurs at the eastern limits of the transmission lines allowing full utilization of these geological resources.

Mineral Resource Extraction Policies

Policy 1: Quarrying is an industry based on the natural resources of the County and shall be encouraged and the resource protected.

The Luck Stone Quarry will be protected from residential development by the Hybrid Energy Park. The Hybrid Energy Park is a compatible use to the Quarry. The natural resources of diabase transitioning to metamorphosed siltstone and sandstone is located at the eastern limits of the transmission lines on the Subject Property as stated above.

Luck Stone is on an interruptible power circuit with NOVEC, meaning if electric power is needed elsewhere the power to Luck Stone can be interrupted and shut off. The Hybrid Energy Park will reduce or eliminate the interruption by providing an ample, reliable source of electric power to Loudoun County and therefore to the Luck Stone Quarry.

Policy 2: The County will recognize and protect its viable extraction industry. The County will protect viable quarries and its diabase resource areas from incompatible neighboring uses. New development will take existing quarries into account.

The proposed Hybrid Energy Park is a compatible use with the Luck Stone quarry operations and it will protect it from residential development.

Policy 3: The County will foster efficient use of its diabase resource. To help achieve this goal, the County will maintain a quarry zoning district that should provide a total of at least 800 acres in Loudoun County to be set aside for extraction and associated activities. The quarry zoning district will make quarrying a permissible use. No residential uses other than watchman's quarters will be permitted in this district. Non-residential uses will be limited to low coverage, heavy industrial uses that will not be adversely affected by quarry operations.

The MR-HI zoning district that is proposed with the Hybrid Energy Park is consistent with the proposed rezoning of the adjacent Luck Stone property and quarrying uses. The Hybrid Energy Park is compatible with and will not be adversely affected by the quarry operations.

Policy 4: Quarry zoning districts should be located on areas where quarries presently exist and/or in industrial communities where the diabase is within the Ldn 65-noise contour of an airport. Areas within the 65 Ldn noise contour and adjoining existing quarries should be preserved for this purpose.

The proposed MR-HI zoning district is appropriate for the Subject Property which is immediately adjacent to the Luck Stone property proposed to be rezoned to MR-HI and used for quarrying. Additionally, the Subject Property is within the Quarry Overlay District and within the Airport Impact Overlay District. The diabase formation transitions to metamorphosed siltstone and sandstone at the eastern end of the transmission line easement.

FISCAL PLANNING AND BUDGETING POLICIES

Policy 2: The County seeks to maintain an affordable real-property tax rate by balancing, on a timely basis, residential and non-residential development in conformance with the overall policies of the Revised General Plan.

The enclosed report prepared by ChmuraEconomics&Analytics, titled "The Economic and Fiscal Benefit of a Proposed Energy Generating Plant in Loudoun County, Virginia" dated July 10, 2009, provides the following information: Preliminary estimates of the total cost of the facility are $829,000,000 and will provide an economic engine for Loudoun County, in construction, jobs, tax revenues and a reliable source of Green energy. After the Hybrid Energy facility is in operation, it is estimated that tax revenues for Loudoun County will be up to $12,000,000 by 2015, and stabilizing by 2019, at over $8,000,000 per year. In addition to these tax revenues, Loudoun County charges an electricity utility tax for residential and commercial uses and that annual tax is estimated to be $1,200,000 per year.

Policy 3: The County will seek further revenue diversification, which will increase fiscal stability and thereby, mitigate tax burdens on Loudoun County taxpayers.

See above.

ECONOMIC DEVELOPMENT POLICIES

Policy 1: Loudoun seeks and promotes a diverse economic base in multitude of industries that it is not entirely dependent upon any single employer or employment sector.

The Hybrid Energy Park will diversify the economic base in Loudoun County. It will provide a clean, reliable and renewable source of electrical power that is critical and necessary for high tech and data center reliability and will help attract data center uses further diversifying Loudoun County's economic base.

Policy 4: The County recognizes that economic policy and land use policy must be coordinated. The County seeks to implement the economic goals as adopted and subsequently amended by the Board of Supervisors in Loudoun County's Economic Development Plan and Growth Strategy within the framework provided by the Comprehensive Plan.

The positive economic impacts of the proposed Hybrid Energy Park further the goals and policies of the RGP. The Hybrid Energy Park will provide energy for Loudoun County and northern Virginia, and keep costs more reasonable than importing electricity from other areas outside of the region.

ENERGY AND COMMUNICATIONS POLICIES

Policy 4: Electric generation facilities that use clean burning and environmentally sound and proven fuel sources for power generation can be located only where their impact on the surrounding land uses and the environment is compatible.

The proposed Hybrid Energy Park is compatible with the surrounding land uses and environment. The solar array, combined cycle and simple-cycle generating facilities will provide a dedicated and reliable clean and renewable source of power for the regional electrical grid covering Loudoun County. It will use efficient and proven modern technology for producing clean power utilizing natural gas from the existing interstate pipelines, solar energy, and waste water from the Leesburg wastewater treatment plant which will further contribute to the clean up the Potomac River and the Chesapeake Bay.

AIR QUALITY POLICIES

Policy 4: The County will comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan.

The Hybrid Energy Park will be required to comply with the requirements of the Federal Clean Air Act Amendments of 1990. All emissions from the Hybrid Energy Park facilities will be closely regulated and monitored by the Virginia Department of Environmental Quality ("VA DEQ") through an air permit that is issued prior to the start of construction. Furthermore, natural gas generates 50% less carbon dioxide than coal and 15-20% less than oil in the production of electricity. Natural gas has an additional advantage over coal when used in highly efficient combined cycle gas turbines as proposed in the Hybrid Energy Park. The Hybrid Energy Park facilities will produce virtually zero sulfur dioxide and very low amounts of NOx. The Hybrid Energy Park will provide the means to efficiently produce electricity in a Green and clean manner.

The proposed Hybrid Energy Park will be designed with air pollution control technology as advanced as any plant in the United States, Western Europe and Japan to reduce

discharges.[9] The enclosed report titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" and prepared by MACTEC, dated July 1, 2009, states "Once the plant is built and is operating under the maximum emissions scenario, there will be negligible effect on the air quality levels at the plant property line, in any of the communities surrounding the plant, the Town of Leesburg, or ay other receptors downwind from the source."

Additionally, the Hybrid Energy Park will reduce Loudoun County's reliance for power generated by coal powered facilities, which will reduce the pollutants in the Washington Metropolitan Nonattainment Area.

Policy 5: Loudoun County acknowledges its location in the Washington, DC-MD-VA Non-attainment Area. The County will continue to play an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB) and will do its part in the implementation of the Phase II Attainment Plan for the Washington Metropolitan Nonattainment Area, as well as future emissions reduction programs.

The Hybrid Energy Park facilities will utilize air pollution control equipment that represents the best technology available, including oxidation catalyst to control CO and a dry low-NOx combustion system and selective catalytic reduction system to control NOx. Any required emission offsets for NOx will be obtained from other existing sources in the metropolitan Washington, DC area, as directed by DEQ.

The proposed Hybrid Energy Park as demonstrated above is in accordance with the Comprehensive Plan, as required by Section 6-1100 of the Zoning Ordinance.

V. TRANSPORTATION

Access to the Hybrid Energy Park will be from Gant Lane with a secured entrance. As stated in the previously submitted Memorandum prepared by Patton Harris Rust & Associates, dated February 25, 2009, there will be approximately 25-full time employees at the Hybrid Energy Park. These employees will generate 24 AM peak hour trips, 26 PM peak hour trips and 89 Average Daily Trips.

VI. SUMMARY

Approval of the proposed rezoning, special exception and commission permit applications are the first steps in a long process for approval of the Hybrid Energy Park which requires additional Federal and State agencies approval.

[9] MACTEC, Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA. July 1, 2009, p. 1.

The Subject Property is unique and has the necessary existing resources for an energy park with two interstate natural gas transmission pipelines and three high voltage Dominion Virginia Power transmission circuits traversing the Subject Property. These transmission lines serve Virginia as part of the PJM RTO which controls the transmission of power in the entire mid-Atlantic region. By utilizing two separate gas supply lines and having direct access to the interstate and regional power grid, the proposed Hybrid Energy Park will make a major contribution to national and regional energy security and make Loudoun County more energy self sufficient while making a substantial contribution to the cleanup of the Chesapeake Bay. This process of utilizing wastewater plant effluent will be the first one of its type in the Upper Potomac River Basin and will be a prime example of being able to show local governments ability to help clean up the Chesapeake Bay.

Electricity generated by the cleanest and most efficient state of the art technology available will supply Loudoun County with power and address the shortage and transmission congestion in the Northern Virginia region. The Hybrid Energy Park will reduce the need for additional overhead power transmission lines in Loudoun County that are importing power from outside of Virginia and reduce Loudoun County's reliance on coal power generating plants.

The proposed Hybrid Energy Park is consistent with the Comprehensive Plan. The Subject Property is located within the Transition Policy Area and the Lower Sycolin Creek Subarea as specified in the Loudoun County's Revised General Plan. The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide unique development opportunities (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The Luck Stone quarry which borders the Subject Property to the east will be protected from residential development by the Hybrid Energy Park. The Hybrid Energy Park will attract data center users that require high security which will fulfill the needs for a Federal Government Contracting Industry Cluster while providing Loudoun County with a significant increase in tax revenues.

For the reasons stated above, the Applicant respectfully requests a recommendation of approval from Staff and the Planning Commission and approval by the Board of Supervisors of the Hybrid Energy Park.

ATTACHMENT

STATEMENT OF JUSTIFICATION
GEP/S HYBRID ENERGY PARK
ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001
Zoning Map Amendment Petition and Special Exception Application
Issues for Consideration

Section 6-1211(E) of the Revised 1993 Loudoun County Zoning Ordinance states: "If the application is for reclassification of property to a different zoning district classification on the Zoning Map, . . . The Planning Commission shall give reasonable consideration to the following matters...".

(1) **Whether the proposed zoning district classification is consistent with the Comprehensive Plan.**
The proposed MR-HI zoning district classification and the development of the Hybrid Energy Park are consistent with the Comprehensive Plan. The Subject Property is located within the Transition Policy Area and the Lower Sycolin Creek Subarea as specified in the Loudoun County's Revised General Plan (RGP). The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide some unique development opportunities (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The Luck Stone quarry expansion proposed to be rezoned to MR-HI that borders the Subject Property to the east will be protected from residential development by the Hybrid Energy Park.

(2) **Whether there are any changed or changing conditions in the area affected that make the proposed rezoning appropriate.**
The proposed rezoning to MR-HI for the Hybrid Energy Park is appropriate and compatible with the changing conditions of the adjacent properties to the east. The expansion and proposed rezoning of the Luck Stone Quarry properties and the Loudoun Waters proposed water treatment plant to the east and southeast of the Subject Property have changed the land use conditions of the area.

The existing conditions on the Subject Property, consisting of the gas lines and high voltage transmission lines make the proposed rezoning appropriate for the Hybrid Energy Park.

(3) **Whether the range of uses in the proposed zoning district classification are compatible with the uses permitted on other property in the immediate vicinity.**
The proposed Hybrid Energy Park industrial use is compatible with the other industrial uses such as the Luck Stone quarry and the proposed Loudoun Water water treatment plant on the property in the immediate vicinity to the east.

(4) **Whether adequate utility, sewer and water, transportation, school and other facilities exist or can be provided to serve the uses that would be permitted on the property if it were rezoned.**
Public water and sewer are available from Loudoun Water, water may also be available from the Town of Leesburg. There are existing overhead power lines, and gas lines on the Subject Property. Transportation improvements will be made to the site's access to serve the approximately 25 employees of the Hybrid Energy Park. Since the proposed development does not contain residential uses, there will be no impact on public schools.

(5) **The effect of the proposed rezoning on the County's ground water supply.**
Stormwater management and best management practices will be incorporated into the site design which will assist in maintaining the quality of the ground water supply. The Applicant will comply with requirements of the Facilities Standards Manual Section 5.320.E that requires the implementation of a stormwater pollutant prevention plan. Additionally, surface and stormwater will be regulated under a DEQ issued VPDES. The net effect of the facilities will improve water quality in the Potomac River and Chesapeake Bay.

The Hybrid Energy Park facilities will include a water-cooled system utilizing treated effluent from the Leesburg wastewater treatment plant which is currently piped into the Potomac River. Based upon the hours per day of operation, the Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water. This process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Upper Potomac River Basin that feeds into the Chesapeake Bay from the Leesburg wastewater treatment plant. This process will be the first one of its type in the Upper Potomac River Basin and will be a prime example of being able to show local governments ability to help clean up the Chesapeake Bay. The Applicant is having discussions with the Town of Leesburg to use the waste water effluent from the Leesburg wastewater treatment plant. The Hybrid Energy Park plans to treat, re-circulate, and reuse all the cooling water, thus nearing zero discharge. Only in a maintenance situation will any water used in the process be returned to the Leesburg wastewater treatment plant. Even though the water would be clean enough to be discharged into the Potomac River, it will not be released on site. GEP/S is discussing with Loudoun Water the use of reservoir water as a back up or secondary source of cooling water. An air cooled system is another alternative that could be utilized.

(6) **The effect of uses allowed by the proposed rezoning on the structural capacity of the soils.**
The proposed uses will not affect the structural capacity of the soils. Hydric soils

are included in the U.S Army Corps of Engineers Jurisdictional Determination #05-R2064.

(7) **The impact that the uses that would be permitted if the property were rezoned will have upon the volume of vehicular and pedestrian traffic and traffic safety in the vicinity and whether the proposed rezoning uses sufficient measures to mitigate the impact of through construction traffic on existing neighborhoods and school areas.**

The proposed use will have minimal impacts on the volume of vehicular traffic. There will be approximately 25-full time employees at the Hybrid Energy Park. These employees will generate 24 AM peak hour trips, 26 PM peak hour trips and 89 Average Daily Trips. Appropriate and sufficient measures to mitigate the impact of the construction traffic on the existing residential uses will be determined during the processing of the site plan application.

(8) **Whether a reasonably viable economic use of the subject property exists under the current zoning.**

The Subject Property is zoned TR-10 which permits predominantly residential uses which are not economically viable, compatible or desired uses due to the proximity of the Luck Stone properties and quarry uses, the noise contours of the Leesburg Airport, the high voltage transmission lines and the natural gas transmission lines. Residential uses will have greater impacts on the roads, County services and public schools.

(9) **The effect of the proposed rezoning on the environment or natural features, wildlife habitat, vegetation, water quality and air quality.**

The enclosed report "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" prepared by MACTEC and dated July 1, 2009, states that "Once the plant is built and is operating under maximum emissions scenario, there will be negligible effect on the air quality at the plant property line, in any of the communities surrounding the plant, the Town of Leesburg, or any other receptors downwind from the source."

The proposed Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water in the generation of electricity. Depending on the hours per year of operation, this unique process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Potomac River that feeds into the Chesapeake Bay from the Leesburg wastewater treatment plant. Steam produced in the Hybrid Energy Park could be used to heat and cool the data centers and buildings within a service area. The Hybrid Energy Park facilities may approach zero discharge and process water will not be discharged into the stormwater management pond or Sycolin Creek. The entire site drains

away from the Goose Creek Reservoir.

The existing pond on site will be improved for stormwater management and water quality. Additionally, surface and stormwater will be regulated under a NPDES permit. The net effect of the facilities will improve water quality in the Potomac River and Chesapeake Bay.

Proposed with the Hybrid Energy Park are a River Stream Corridor Overlay District (RSCOD) and the stream valley buffer along Sycolin Creek and floodplain area within the Subject Property. The wetlands areas will not be disturbed, with the exception of improvements to Gant Lane, the site access, and underground utility lines required for the development of the Hybrid Energy Park. The Hybrid Energy Park is a unique development opportunity that is appropriate at this location due to the existence of the natural gas lines, high voltage power lines, water resources, quarry uses, the airport noise impacts, in addition to the proposed rezoning applications by Luck Stone and Loudoun Water. The topography of the area including forested ridges and valleys makes the Hybrid Energy Park less visible from the surrounding area.

Trees and vegetation will be preserved in the RSCOD, stream valley buffer and floodplain areas. In addition to these areas tree save areas have been designated on the plat.

(10) **Whether the proposed rezoning encourages economic development activities in areas designated by the Comprehensive Plan and provides desirable employment and enlarges the tax base.**

The Hybrid Energy Park will provide a clean, reliable and renewable source of electrical power that is critical and necessary for high tech and data center reliability and will help attract data center uses further diversifying Loudoun County's economic base.

Preliminary estimates of the total cost of the facility are $829,000,000 and will provide an economic engine for Loudoun County, in construction, jobs, tax revenues and a reliable source of Green energy. After the Hybrid Energy facility is in operation, it is estimated that tax revenues for Loudoun County will be up to $12,000,000 by 2015, and stabilizing by 2019, at over $8,000,000 per year. In addition to these tax revenues, Loudoun County charges an electricity utility tax for residential and commercial uses and that annual tax is estimated to be $1,200,000 per year.

(11) **Whether the proposed rezoning considers the needs of agriculture, industry, and businesses in future growth.**

The proposed MR-HI zoning district is appropriate for the Subject Property which is immediately adjacent to the Luck Stone property proposed to be rezoned

to MR-HI and used for quarrying. Additionally, the Subject Property is within the Quarry Overlay District and within the Airport Impact Overlay District. The diabase formation transitions to metamorphosed siltstone and sandstone at the eastern end of the transmission line easement.

The Hybrid Energy Park will provide a clean, reliable and renewable source of electrical power that is critical and necessary for high tech and data center reliability and will help attract data center uses further diversifying Loudoun County's economic base.

(12) Whether the proposed rezoning considers the current and future requirements of the community as to land for various purposes as determined by population and economic studies.

The proposed rezoning is consistent with the current and future requirements for generation of electricity. The Subject Property is uniquely situated with two 230 kV and one 500 kV Dominion Virginia Power high voltage transmission circuits on two separate 130 foot tall (approximately) aerial structures located within a 250 foot wide easement. Two interstate natural gas transmission lines owned by Columbia Gas and Dominion and located within a 30 foot wide easement transverse the Subject Property in a north/south direction parallel to the electrical transmission lines. These interstate natural gas lines are unique in that these lines originate in two separate areas of the United States, which is particularly advantageous in natural disasters such as hurricanes when one of the lines may be disabled. One of the lines originates in the Ohio Valley and the other from the Gulf Coast. This is the primary reason that other fuels will not be utilized as a back up source.

Electricity will be generated by the cleanest and most efficient state of the art technology, and will supply northern Virginia with power and address the shortage and congestion in the Northern Virginia region. The Hybrid Energy Park may reduce the need for additional overhead power transmission lines in Loudoun County that are importing power from outside of Virginia.

(13) Whether the proposed rezoning encourages the conservation of properties and their values and the encouragement of the most appropriate use of land throughout the County.

With the location of the high voltage transmission lines and the natural gas lines, the most appropriate use of land for the Subject Property is the Hybrid Energy Park.

(14) Whether the proposed rezoning considers trends of growth or changes, employment, and economic factors, the need for housing, probable future economic and population growth of the county and the capacity of existing and/or planned public facilities and infrastructure.

The land uses have changed in the area with the Luck Stone purchase of additional property adjacent to the existing quarry and Loudoun Water's proposed water treatment facility. The proposed Hybrid Energy Park is complimentary to the quarry and water treatment facility uses.

Electricity is an important part of the public infrastructure and is an integral part of life and electric system reliability is indispensable to support residential, commercial, industrial and governmental functions. Lack of reliable electricity is not just an inconvenience, but it creates an economic loss. Loudoun County has become one of the prime locations for internet related companies. These internet related companies include numerous data centers that create high value tax revenues with few employees. With Loudoun County's foresight the issue of electrical self sufficiency and security in the future would allow for the continuation of the expansion of these high value tax paying companies to locate within Loudoun County.

The Hybrid Energy Park will diversify the economic base in Loudoun County and it will provide Loudoun County with tax revenues and generate electricity for the region. Redundant and reliable source of electrical power is critical and necessary for high tech and data center reliability. Northern Virginia and Loudoun County are leaders in the high technology industry and are facing escalating reliability problems with electrical power generation and transmission which has resulted in threats of rolling blackouts, appeals for voluntary curtailment by consumers, and proposals to construct numerous transmission lines throughout Loudoun County. Resolving electricity reliability problems in a crisis atmosphere undermines customer confidence and is almost always unnecessarily expensive with cost frequently driven by areas other than the appropriate fuel and technology

(15) **The effect of the proposed rezoning to provide moderate housing by enhancing opportunities for all qualified residents of Loudoun County.**
Housing is not appropriate on the Subject Property due to the proximity of the Luck Stone quarries, Loudoun Water's proposed water treatment plant, Leesburg Airport noise, overhead transmission lines and towers and the natural gas transmission lines.

(16) **The effect of the rezoning on natural, scenic, archaeological, or historic features of significant importance.**
The rezoning will not have an effect on natural, scenic, archeological, or historic features of significant importance.

The previously submitted "Phase I Archeological Investigations of the Circa 652 Creekside Areas 4 and 5 Property, Loudoun County, Virginia" report by Thunderbird Archeology dated October 2005, identified the following on the

Subject Property: sites #44lD1326 and #44LD1328 and structure 053-5278 (barn). Site #44LD1326 is predominantly located within the overhead powerline easement area on the south eastern portion of the Subject Property and is not considered to be potentially eligible for inclusion on the National Register of Historic Places, and no additional archeological work is recommended for this site. Site #44LD1328 and Structure 053-5278 are generally located adjacent to the existing smaller pond near Gant Lane in the northern portion of the Subject Property, and are not considered potentially eligible for inclusion on the National Register of Historic Places, and no additional archeological work is recommended.

Section 6-1310 Issues of Consideration of the Revised 1993 Loudoun County Zoning Ordinance states: "In considering a special exception application, the following factors shall be given reasonable consideration."

(A) Whether the proposed special exception is consistent with the Comprehensive Plan.

The proposed Hybrid Energy Park is consistent with the Comprehensive Plan. The Subject Property is located within the Transition Policy Area and the Lower Sycolin Creek Subarea as specified in the Loudoun County's Revised General Plan (RGP). The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide unique development opportunities (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The Luck Stone quarry which borders the Subject Property to the east will be protected from residential development by the Hybrid Energy Park.

(B) Whether the proposed special exception will adequately provide for safety from fire hazards and have effective measures of fire control.

The proposed Hybrid Energy Park will adequately provide for safety from fire hazards. Contact information and procedures for fire, rescue and other emergency response teams will be included in the Hybrid Energy Park operating procedures which will be developed prior to commencement of operations. The procedures will be reviewed with appropriate Loudoun County Fire, Rescue and Emergency Management personnel.

(C) Whether the level and impact of any noise emanating from the site, including that generated by the proposed use, negatively impacts the uses in the immediate area.

Noise emanating from the Hybrid Energy Park will meet the requirements of the Zoning Ordinance and will not negatively impact the uses in the immediate area. If necessary, noise attenuation measures will be incorporated to insure compliance with the Zoning Ordinance requirements.

(D) Whether the glare or light that may be generated by the proposed use negatively impacts uses in the immediate area.

The Hybrid Energy Park facilities will require external lighting to allow for safe operations, including elevated catwalks, Heat Recovery Steam Generators and turbine facilities. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facilities will be designed to enable outdoor lighting for distinct areas of the facilities to be switched off while not in use or not required for safety considerations.

(E) **Whether the proposed use is compatible with other existing or proposed uses in the neighborhood, and adjacent parcels.**
The proposed Hybrid Energy Park industrial use is compatible with the other industrial uses such as the Luck Stone quarry and the proposed Loudoun Water water treatment plant on the property in the immediate vicinity to the east.

(F) **Whether sufficient existing or proposed landscaping, screening and buffering on the site and in the neighborhood to adequately screen surrounding uses.**
The topography of the area including forested ridges and valleys makes the Hybrid Energy Park less visible from the surrounding area. The RSCOD and Stream Valley Buffer areas combined with a tree preservation area, the vegetated buffer and fence will provide screening and buffering from the adjacent areas.

(G) **Whether the proposed special exception will result in the preservation of any topographic or physical, natural, scenic, archaeological or historic feature of significant importance.**
The proposed Hybrid Energy Park will not impact topographic, physical, archeological or historic features of significant importance.

(H) **Whether the proposed special exception will damage existing animal habitat, vegetation, water quality (including groundwater) or air quality.**
The enclosed report "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" prepared by MACTEC and dated July 1, 2009, states that "Once the plant is built and is operating under maximum emissions scenario, there will be negligible effect on the air quality at the plant property line, in any of the communities surrounding the plant, the Town of Leesburg, or any other receptors downwind from the source." Water quality will be improved by the use of wastewater effluent from the Leesburg Wastewater Treatment facility or the future Loudoun Water reservoirs in the Hybrid Energy plant for cooling and process water.

The proposed Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water in the generation of electricity. Depending on the hours per year of operation, this unique process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Potomac River that feeds into the Chesapeake Bay from the Leesburg wastewater treatment plant. Steam produced in the Hybrid Energy Park could be used to heat and cool the data centers and buildings within a service area. The Hybrid Energy Park facilities may approach zero discharge and process water will not be discharged into the stormwater management pond or Sycolin Creek. The entire site drains away from the Goose Creek Reservoir.

The existing pond on site will be improved for stormwater management and water

quality. Additionally, surface and stormwater will be regulated under a VPDES permit that is issued by DEQ. The net effect of the facilities will improve water quality in the Potomac River and Chesapeake Bay.

(I) **Whether the proposed special exception at the specified location will contribute to or promote the welfare or convenience of the public.**
The proposed Hybrid Energy Park will provide reliable and redundant electricity to support the power grid to prevent future brown outs which promotes the welfare and convenience of the public.

The specified location for the Hybrid Energy Park is well suited for the Hybrid Energy Park. In locating an electrical power producing facility three components must be available, i) electrical transmission facilities, ii) fuel and iii) water. The Hybrid Energy facility is proposed to be located on property that contains two 230kV and one 500kV electrical transmission lines owned by Virginia Dominion Power and operated through PJM. Two main high pressure natural gas lines also traverse the property; one extends from the Gulf of Mexico and the other from the Ohio Valley. These natural gas lines connect to the main north-south Transco natural gas line and also connect to the Coles Point, Virginia LNG port. Since the source of these natural gas lines are from different geographical areas, there is a backup source of natural gas In the event that one of the gas lines is disabled. Therefore, the proposed Hybrid Energy Park is sited in a unique location that provides the needed components.

(J) **Whether the traffic expected to be generated by the proposed use will be adequately and safely served by roads, pedestrian connections and other transportation services.**
The proposed Hybrid Energy Park will employ approximately 25 people divided among a three shift work day. The vehicular trips generated by these employees will be adequately and safely accommodated by the surrounding road networks.

(K) **Whether, in the case of existing structures proposed to be converted to uses requiring a special exception, the structures meet all code requirements of Loudoun County.**
Existing structures are not proposed to be converted to uses requiring a special exception or primary uses.

(L) **Whether the proposed special exception will be served adequately by essential public facilities and services.**
The proposed Hybrid Energy Park special exception use will be served adequately by public facilities and services.

(M) **The effect of the proposed special exception on groundwater supply.**
Stormwater management and best management practices will be incorporated

into the site design which will assist in maintaining the quality of the ground water supply. The Applicant will comply with requirements of the Facilities Standards Manual Section 5.320.E that requires the implementation of a stormwater pollutant prevention plan. Additionally, surface and stormwater will be regulated under a VPDES permit issued by DEQ. The net effect of the facilities will improve water quality in the Potomac River and Chesapeake Bay.

The Hybrid Energy Park facilities will include a water-cooled system utilizing treated effluent from the Leesburg wastewater treatment plant which is currently piped into the Potomac River. Based upon the hours per day of operation, the Hybrid Energy Park facilities may utilize up to approximately five million gallons per day (net) of waste water effluent for cooling water and process water. This process could eliminate up to two billion gallons of effluent per year that is currently being discharged directly into the Upper Potomac River Basin that feeds into the Chesapeake Bay from the Leesburg wastewater treatment plant. This process will be the first one of its type in the Upper Potomac River Basin and will be a prime example of being able to show local governments ability to help clean up the Chesapeake Bay. The Applicant is having discussions with the Town of Leesburg to use the waste water effluent from the Leesburg wastewater treatment plant. The Hybrid Energy Park plans to treat, re-circulate, and reuse all the cooling water, thus nearing zero discharge. Only in a maintenance situation will any water used in the process be returned to the Leesburg wastewater treatment plant. Even though the water would be clean enough to be discharged into the Potomac River, it will not be released on site. GEP/S is discussing with Loudoun Water the use of reservoir water as a back up or secondary source of cooling water. An air cooled system is another alternative that may be utilized.

(N) Whether the proposed use will affect the structural capacity of the soils.
The proposed use will not affect the structural capacity of the soils. *Hydric soils are included in the U.S Army Corps of Engineers Jurisdictional Determination #05-R2064.*

(O) Whether the proposed use will negatively impact orderly and safe road development and transportation.
Road improvements will be made to safely accommodate the traffic that will be generated by the Hybrid Energy Park, which will employ approximately 25 people.

(P) Whether the proposed special exception use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.
The Hybrid Energy Park will diversify the economic base and will provide Loudoun County with tax revenues and generate electricity for the region.

Redundant and reliable source of electrical power is critical and necessary for high tech and data center reliability.

Preliminary estimates of the total cost of the facility are $829,000,000 and will provide an economic engine for Loudoun County, in construction, jobs, tax revenues and a reliable source of Green energy. After the Hybrid Energy facility is in operation, it is estimated that tax revenues for Loudoun County will be up to $12,000,000 by 2015, and stabilizing by 2019, at over $8,000,000 per year. In addition to these tax revenues, Loudoun County charges an electricity utility tax for residential and commercial uses and that annual tax is estimated to be $1,200,000 per year.

(Q) **Whether the proposed special exception considers the needs of agriculture, industry, and businesses in future growth.**
The proposed MR-HI zoning district is appropriate for the Subject Property which is immediately adjacent to the Luck Stone property proposed to be rezoned to MR-HI and used for quarrying. Additionally, the Subject Property is within the Quarry Overlay District and within the Airport Impact Overlay District. The diabase formation transitions to metamorphosed siltstone and sandstone at the eastern end of the transmission line easement.

The Hybrid Energy Park will provide a clean, reliable and renewable source of electrical power that is critical and necessary for high tech and data center reliability and will help attract data center uses further diversifying Loudoun County's economic base.

(R) **Whether adequate on and off-site infrastructure is available.**
Adequate on and off-site infrastructure is available or will be improved to serve the Hybrid Energy Park. The on-site infrastructure of the two natural gas lines, overhead high voltage electrical transmission lines and proximity to wastewater effluent and potable water provide an ideal location for the Hybrid Energy Park.

(S) **Any anticipated odors which may be generated by the uses on site, and which may negatively impact adjacent uses.**
No odors are anticipated with the Hybrid Energy Park uses on the Subject Property that will negatively impact the adjacent uses.

(T) **Whether the proposed special exception uses sufficient measures to mitigate the impact of construction traffic on existing neighborhoods and school areas.**
Appropriate and sufficient measures to mitigate the impact of the construction traffic on the existing residential uses will be determined during the processing of the site plan application.

The Town of
Leesburg,
Virginia

JOHN WELLS
Town Manager

25 West Market Street ■ P.O. Box 88 ■ 20178 ■ 703-771-2700 ■ Fax: 703-771-2727 ■ www.leesburgva.gov

May 13, 2009

Judi Birkitt, Project Manager
Loudoun County Department of Planning
1 Harrison Street, SE
P.O. Box 7000
Leesburg, VA 20177

RE: **Referral request for a special exception and Commission Permit SPEX 2009-0009 and CMPT 2009-0001, Hybrid Energy Park at Stonewall Secure Business Park, to allow a utility generating plant and transmission facility.**

Dear Ms. Birkitt:

We are in receipt of the referral request for first submission of the above referenced project, and we are pleased with the opportunity to provide you with the following comments:

Recommendation: The Town feels that this first submittal application at this time does not provide enough critical information on the project to be able to garner a positive recommendation. The issues that the Town feels need to be addressed are indicated below.

Description of the Proposal: The applicant is proposing a special exception and a commission permit for the development of a utility generating plant and transmission facility on 87 acres south of Sycolin Creek and east of Sycolin Road. The applicant is proposing to build a primary and peak demand facility including up to a 600 megawatt combined cycle gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power natural gas turbines, and a 1 megawatt solar array. The energy plant is proposed to be part of the Stonewall Secure Business Park that is the subject of a proposed rezoning of 294 acres, located south of Leesburg generally in the vicinity of the intersection of Sycolin Road and Cochran Mill Road. The rezoning entails a proposed change from JLMA 20 to Planned Development-Industrial Park (PD-IP) and Planned Development-General Industry (PD-GI). The energy plant will provide power to the energy grid, and serve as a redundant source of energy for the secure data center and high technology business park. The site is in the Transition Zone of the Loudoun County Revised General Plan.

The Stonewall Business Park proposal is currently on a separate track than this proposal. Approval of the business park project would have to precede approval of this proposal, in order to provide a zoning framework to allow approval of this project.

Analysis and Recommendations: The following analysis is based on comments from several Town departments. The complete Town departmental comments are attached. The review was undertaken with regard to a number of subject areas, including land use, utilities, and environmental. This review is based on "Stonewall Secure Business Park: SPEX 2009-0009, CMPT 2009-0001" (4 sheets, last dated March 30, 2009), "Statement of Justification: Hybrid Energy Park, Stonewall Secure Business Park" (last dated March 25, 2009), and "Draft Conditions of Approval: Hybrid Energy Park, Stonewall Secure Business Park" (dated March 30, 2009).

It should be noted that the application does not appear to specify any design criteria, including the height of any stacks or venting apparatus. The applicant has stated that the stacks would not exceed approximately 130 feet in height, but there is no commitment to that within the application. This is a significant area of concern for the Town, in addition to the types and quantities of materials vented from said stacks, and needs to be addressed with subsequent submittals.

Land Use:

The majority of the site of the proposed zoning amendment and special exceptions lies beyond the Leesburg joint planning area (referred to in the Town Plan as the UGA/JLMA). Nevertheless, the site is immediately adjacent to the joint planning area, and the proposed development could have substantial impacts on the area and the Town.

Conclusions:

1. **Application.** The statement of the justification for the power plant states that the plant will be a redundant source of energy "necessary for high tech and data center reliability." (p. 3) Similarly, the statement of justification for the Stonewall Secure Business Park states that it is "crucial to a secure business park" to have redundancy and resiliency of infrastructure, including "uninterrupted power system by multiple sources." (p. 4) However, the applications for the power plant and the secure business park have been submitted separately. It would seem appropriate to consider the two proposals jointly, in order to assess them properly.

2. **Transition Policy Area.** Leesburg's planning has relied on development to be in accordance with the Revised General Plan's Transition Policy Area designation for the area south of the Town. The proposal, as a necessary part of the Stonewall Secure Business Center, does not appear to comply with the policies for the Transition Policy Area because of the type of use (nonresidential), intensity of use (0.6 FAR), and provision of central sewer and water proposed in the business center. Nor does the application address possible aspects of an energy plant, such as noise, vibrations, and visibility of cooling towers. An intensive,

industrial use is not consistent with the clusters, rural villages, or nonresidential uses envisioned for the Transition Policy Area (Revised General Plan, Transition Policy Area, Community Design policies 2 and 15, pp. 8-6 and 8-7); and it seems far from the "more rural character" (RGP, p. 8-5) envisioned for the Lower Sycolin Subarea of the Transition Policy Area.

In particular, Leesburg Joint Land Management Area Policy 3 states, "Power generation plants are not compatible with existing residential areas within or near the Town JLMA, and therefore, are not allowed in the Leesburg JLMA." (p. 9-11) In addition, objective 4 of the community facilities and services element of the Town Plan states, "Locate and construct community facilities in regard to other Plan policies, including compatibility with the Town character, and protection and enhancement of residential areas, natural resources, and heritage resources." (p. 83) Policy 3 of the Revised General Plan was written in response to a previously proposed power plant within the JLMA; that plant was to be powered by fuel oil with towers several hundred feet tall. Virtually all the site of the currently proposed plant is outside of the JLMA. On the one hand, since the site is located at the boundary of the JLMA, it would be appropriate for the county to consider carefully the applicability of its prohibition of power plants to this site. On the other hand, if the applicant can demonstrate that the proposed plant will not have adverse air, water, energy, and aesthetic impacts, it may be worth considering the plant's acceptability in light of growing demands for electric power and the need for distributed, efficient power generation.

3. **Greenbelt.** The Revised General Plan calls for a greenbelt around the Town (Leesburg Joint Land Management Area Policy 4.a, p. 9-12). The proposal does not include any specifics about preservation of the greenbelt. The Town requests that greenbelt be accommodated in development of the site.

4. **Transportation.**
   a. The proposal does not include any specifics about improvements to the road system abutting the site. The Town Plan's Road Network Policy Map (which coincides with the Revised Countywide Transportation Plan) calls for Cochran Mill Road (Rt 653) to be a 4-lane, undivided through collector. According to the Town Plan, Cochran Mill Road should be relocated out of the floodplain of Sycolin Creek by crossing Sycolin Creek and traversing the site before intersecting Sycolin Road.

   b. The proposal does not include any specifics about improvements to the bicycle/pedestrian facilities abutting the site. The Town Plan's Bicycle/Pedestrian Facilities Policy Map shows a multi-use path along Sycolin Creek.

Traffic and Transportation:

The various issues surrounding traffic and transportation for this project must be addressed through the Stonewall Secure Business Park application. This particular use will have an impact

on the Stonewall application, by creating a land use that produces significantly less traffic than other PD-GP uses that could be proposed for the location.

Staff will be awaiting the second submittal of the Stonewall Secure Business Park application to fully analyze the total impacts of development related to the total acreage of the Stonewall Secure Business Park and all of its uses.

Utilities:

One of the main issues surrounding this application is that of the statements related to the Town of Leesburg providing effluent from our treatment facility to be utilized by the power facility. Any action regarding this part of the proposal must be endorsed by the Town Council.

Conclusions:

1. It is not known how this facility will be served by public utilities as indicated within the application.

2. It is not known how the state agencies will react to the use of treated effluent from the wastewater operation in this process. The applicant must discuss the steps taken so far to address this issue.

3. It is not known how the effluent from the Town's facility will be conveyed to this facility..

4. This proposal must be endorsed by the Town Council before the applicant proceeds any further on this application

Environmental:

The proposed power plant facility has the potential to reduce impacts on the regional and global environment. The applicant needs to provide additional detail and commitments on how they will minimize and mitigate noise and lighting pollution as well as impacts to local water, air, and other natural resources. And while tentatively recommending approval, specific issues related to the environmental impacts must be addressed through the state and local permitting process.

Of specific concern to the Town, other than listed below, is the amount and types of emissions from the venting of this project, and its impact on the local populace. We would strongly recommend that the Town be kept informed of any permitting process from agencies and jurisdictions outside of Loudoun County.

Conclusions:

1. **Energy Production:** According to the U.S. Governmental Energy Information Administration, coal-fired power plants account for about one-half of the Virginia's

electricity generation and nuclear power plants account for another approximately one-third. Natural gas and petroleum-fired power plants account for most of the rest. According to the International Energy Association, 37% of the world's man-made carbon dioxide emissions result from electricity generation. Carbon dioxide is the primary gas in greenhouse gases, which contribute to the greenhouse effect and related climate change. Coal-fired power plants produce more carbon dioxide than any other method of generating electricity and are one of the largest contributors to emissions of smog-producing air pollutants. Further, the International Energy Agency reports that coal-fired plants are the least efficient of the methods for producing electricity.

A significant portion of the electricity used in Leesburg is produced from inefficient, high- polluting coal fired power plants. The proposed combined cycle natural gas power plant will provide electricity at nearly twice the efficiency of coal powered plants while producing less than one-half of the carbon dioxide, and much smaller fractions of other greenhouse gases (NO_x and SO_2). While solar and wind energy production are even cleaner and more sustainable ways to produce electricity (they do not deplete non-renewable resources such as oil, gas, and coal), the proposed natural-gas facility is as clean and efficient as is available from fossil fuel based power plants. Considering the strategic location of the site along major gas and electric transmission lines, it makes sense to develop a combined cycle natural gas power plant here. Moreover, on a regional scale there will be environmental and natural resource benefits of the area reducing its dependence on electricity produced by coal burning power plants.

2. **Air Resources Impacts:** Air resource impacts will be monitored and regulated by the Commonwealth of Virginia. I recommend that the applicant provide information on how the facility will be designed to minimize impacts to air resources through the use of advanced emissions controls such as a Selective Catalytic Reduction System to reduce nitrogen oxides and catalysts to remove carbon monoxide.

3. **Water Resources Impacts:** The combined cycle facility will use up to five million gallons of water per day which the applicant is requesting Leesburg supply from the Town's Wastewater Pollution Control facility. According to the U.S. EPA, when pollutants and heat build up in the water used in combined cycle systems, the water is often discharged into lakes or streams. This discharge usually requires a permit and is monitored.

   My primary concern related to water resources is how water will be treated prior to discharge into the local streams (Sycolin Creek, Goose Creek, and the Potomac River). The proposed power plant should not be permitted to degrade water quality in area streams through thermal or other pollution. Loudoun County may want to consider a condition of Special Exception approval related to requiring discharge treatment and monitoring to protect local streams.

A secondary concern is for potential impacts to aquatic wildlife during drought times due to reduction of in-stream flows in the Potomac River as a result of diversion of five million gallons of water per day. Currently, those five million gallons of treated water from the Town's facility are discharged to the Potomac.

4. **Noise Impacts:** The applicant should provide information of measures to be used to control noise.

5. **Light Impacts:** The applicant should provide information on the height of all the components of the facility and what lighting is proposed. All outdoor lighting should be dark sky compliant to minimize light pollution.

6. **Natural Habitat and Endangered/Threatened Species:** The site has significant natural habitat that plays a role in the region's ecology. The application included a natural resource assessment showing presence of rare species of plants and animals (for example, American Ginseng and the Wood turtle). Design of the site should include retention of an integrated network of key habitat areas.

   Although this is a rather general first submittal and a bit preliminary at this juncture, we do thank you for the opportunity to provide these comments. We are looking forward to addressing the second submittal, as well as the power plant proposal when it arrives. If you require further information, please do not hesitate to contact me at 703.771.2771.

Thank you for the opportunity to provide these comments. We look forward to the second submittal of this application in order to provide further analysis.

Sincerely,

Scott E. Parker, AICP
Assistant to the Town Manager
Town of Leesburg

cc: Town Council
Planning Commission
Town Manager

Attachments:
1. TOL agency referral; Comprehensive Planning (David Fuller)
2. TOL agency referral; Utilities Department (Amy Wyks)
3. TOL agency referral; Environmental (Irish Grandfield)
4. Applicant's Statement of Justification

ATTACHMENT 1

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF PLANNING, ZONING & DEVELOPMENT

TO: SCOTT PARKER, ASSISTANT TO TOWN MANAGER

DATE: APRIL 30, 2009

FROM: COMPREHENSIVE PLANNER

RE: SPEX 2009-0009 & CMPT 2009-0001, HYBRID ENERGY, STONEWALL SECURE BUSINESS PARK, FIRST SUBMISSION

RECOMMENDATION: I do not support the approval of the special exception and commission permit applications as presented.

ISSUE: Does the proposal comply with the policy guidance of the Town Plan?

BACKGROUND: The applicant is proposing a special exception and a commission permit for the development of a utility generating plant and transmission facility on 87 acres south of Sycolin Creek and east of Sycolin Road. The applicant is proposing to build a primary and peak demand facility including up to a 600 megawatt combined cycle gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power natural gas turbines, and a 1 megawatt solar array. The energy plant is part of the Stonewall Secure Business Park that is the subject of a proposed rezoning of 294 acres to Planned Development-Industrial Park (PD-IP) and Planned Development-General Industry (PD-GI). The energy plant will provide power to the energy grid and serve as a redundant source of energy for the secure data center and high technology business park. The site is in the Transition Zone of the Loudoun County Revised General Plan.

This review is based on "Stonewall Secure Business Park: SPEX 2009-0009, CMPT 2009-0001" (4 sheets, last dated March 30, 2009), "Statement of Justification: Hybrid Energy Park, Stonewall Secure Business Park" (last dated March 25, 2009), and "Draft Conditions of Approval: Hybrid Energy Park, Stonewall Secure Business Park" (dated March 30, 2009).

Analysis: The majority of the site of the proposed zoning amendment and special exceptions lies beyond the Leesburg joint planning area (referred to in the Town Plan as the UGA/JLMA). Nevertheless, the site is immediately adjacent to the joint planning area, and the proposed development could have substantial impacts on the area and the Town.

1. **Application.** The statement of the justification for the power plant states that the plant will be a redundant source of energy "necessary for high tech and data center reliability." (p. 3) Similarly, the statement of justification for the Stonewall Secure Business Park states that it is "crucial to a secure business park" to have redundancy and resiliency of infrastructure, including "uninterrupted power system by multiple sources." (p. 4) However, the applications for the power plant and the secure business park have been submitted separately. It would seem appropriate to consider the two proposals jointly, in order to assess them properly.

2. **Transition Policy Area.** Leesburg's planning has relied on development to be in accordance with the Revised General Plan's Transition Policy Area designation for the area south of the Town. The proposal, as a necessary part of the Stonewall Secure Business Center, does not appear to comply with the policies for the Transition Policy Area because of the type of use (nonresidential), intensity of use (0.6 FAR), and provision of central sewer and water proposed in the business center. Nor does the application address possible aspects of an energy plant, such as noise, vibrations, and visibility of cooling towers. An intensive, industrial use is not consistent with the clusters, rural villages, or nonresidential uses envisioned for the Transition Policy Area (Revised General Plan, Transition Policy Area, Community Design policies 2 and 15, pp. 8-6 and 8-7); and it seems far from the "more rural character" (RGP, p. 8-5) envisioned for the Lower Sycolin Subarea of the Transition Policy Area.

   In particular, Leesburg Joint Land Management Area Policy 3 states, "Power generation plants are not compatible with existing residential areas within or near the Town JLMA, and therefore, are not allowed in the Leesburg JLMA." (p. 9-11) In addition, objective 4 of the community facilities and services element of the Town Plan states, "Locate and construct community facilities in regard to other Plan policies, including compatibility with the Town character, and protection and enhancement of residential areas, natural resources, and heritage resources." (p. 83) Policy 3 of the Revised General Plan was written in response to a previously proposed power plant within the JLMA; that plant was to be powered by fuel oil with towers several hundred feet tall. Virtually all the site of the currently proposed plant is outside of the JLMA. On the one hand, since the site is located at the boundary of the JLMA, it would be appropriate for the county to consider carefully the applicability of its prohibition of power plants to this site. On the other hand, if the applicant can demonstrate that the proposed plant will not have adverse air, water, energy, and aesthetic impacts, it may be worth considering the plant's acceptability in light of growing demands for electric power and the need for distributed, efficient power generation.

   Comprehensive planning staff agrees with the applicant that natural gas is better for the environment than other fossil fuels (it produces the least carbon dioxide while producing more energy); that the solar array is better than fossil fuels (it is a renewable source that does not produce green house gases); that the combined cycle technology is better than single cycle (it is more efficient and therefore emits less green house gasses to produce the same amount of electricity); and that distributed electric generators are better than large, central ones (less electricity is lost during

transmission because of shorter distances between the generator and users). If the proposed energy plant can replace an existing coal plant, as suggested in the statement of justification, it will have even greater environmental benefits. The proposed energy plant thus helps to achieve the energy savings and air quality benefits called for in objective 6 of the natural resources element of the Town Plan. The proposed facility also is consistent with several recommendations of the Virginia Energy Plan, including increasing in-state generation of energy and using a heat recovery system.

Comprehensive planning staff also notes that the proposed facility, as a necessary component of the Stonewall Secure Business Park, may help to realize several economic development policies of the Town Plan. It would appear reasonable to consider the applications if the applicant can make an adequate case that this site is "ideal for a high-level security cluster" (p. 3 of the statement of justification for the business park) and that a suitable site in the Suburban Policy Area does not exist, perhaps even if the impacts of the proposal somewhat exceed those outlined in the Revised General Plan. (However, based on the discussion of security measures in the statement of justification for the business park (pp. 3 and 4), it does appear that this site is uniquely situated for a secure business park. Nor do the unsubstantiated statements in the "Issues for Consideration" portion of the statement of justification for the energy plant show that the proposed plant will not have adverse effects from fire hazards , noise, light, compatibility with the adjacent residences, screening, regarding, water quality, air quality, etc.)

In order to increase the environmental benefits of the proposed energy plant and business park, the applicant should consider agreeing to compliance with the Gas Star program (reduce natural gas leakage), Leadership in Energy and Environmental Design (LEED) for all buildings on the site, and Energy Star for all appliances and equipment, as well as developing a transportation demand management program for all occupants of the site and encouraging energy efficient vehicles for businesses locating in the park.

3. **Greenbelt.** The Revised General Plan calls for a greenbelt around the Town (Leesburg Joint Land Management Area Policy 4.a, p. 9-12). The proposal does not include any specifics about preservation of the greenbelt. The Town requests that greenbelt be accommodated in development of the site.

4. **Transportation.**
   a. The proposal does not include any specifics about improvements to the road system abutting the site. The Town Plan's Road Network Policy Map (which coincides with the Revised Countywide Transportation Plan) calls for Cochran Mill Road (Rt 653) to be a 4-lane, undivided through collector. According to the Town Plan, Cochran Mill Road should be relocated out of the floodplain of Sycolin Creek by crossing Sycolin Creek and traversing the site before intersecting Sycolin Road.

b. The proposal does not include any specifics about improvements to the bicycle/pedestrian facilities abutting the site. The Town Plan's Bicycle/Pedestrian Facilities Policy Map shows a multi-use path along Sycolin Creek.

David Fuller, AICP

ATTACHMENT 2

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF UTILITIES

To: Scott Parker, AICP

From: *ae* Aref Etemadi, Deputy Director

Date: April 27, 2009

Subject: Stonewall Secure Business Park - County Referral
Hybrid Energy Plant
SPEX 2009-0009, First Submission

We have reviewed the aforementioned Loudoun County referral and offer the following comments:

1. It is not known how this facility will be served by public utilities as indicated in item "L" of attachment.
2. It is not known how the state agencies will react to the use of treated effluent from the wastewater operation in this process. The applicant must discuss the steps taken so far to address this issue.
3. It is not known how the effluent from the Town's facility will be conveyed to this facility.
4. This proposal must be endorsed by the Town council before the applicant proceeds any further on this application

c: Randolph W. Shoemaker, Director of Utilities
Steve Cawthron, Manager WPCF

ATTACHMENT 3

The Town of Leesburg

INTEROFFICE MEMORANDUM
DEPARTMENT OF PLANNING, ZONING & DEVELOPMENT

TO: SCOTT PARKER, ASSISTANT TO THE TOWN MANAGER

DATE: APRIL 28, 2009

FROM: SENIOR ENVIRONMENTAL PLANNER

RE: STONEWALL HYBRID ENERGY PLANT

RECOMMENDATION: I recommend that the Town support approval of the primary and peak demand energy facility with up to 600 megawatt hybrid combined cycle gas-turbine/water energy plant, up to two 150 megawatt simple cycle peak natural gas turbines, and a 1 megawatt solar array subject to the applicant sufficiently addressing air, water, and other natural resources issues.

ISSUE: Should the Town support County approval of a hybrid energy park south of Leesburg?

BACKGROUND: Green Energy Partners/ Stonewall LCC is requesting Special Exception and Commission Permit approvals from Loudoun County for development of a electricity generating plant and transmission facility at the proposed Stonewall Secure Business Park on Sycolin Road south of Leesburg. The site is strategically located for a power plant with two interstate natural gas transmission lines and three 230KV Dominion Virginia circuits traversing the property. The applicant proposes to build a primary and peak demand facility with up to 600 megawatt hybrid combined cycle gas-turbine/water energy plant, up to two 150 megawatt simple cycle peak natural gas turbines, and a 1 megawatt solar array. The combined cycle facility will use up to five million gallons of water. The applicant is requesting Leesburg to consider a proposal to supply the water from treated wastewater from the Town's Wastewater Pollution Control facility.

Energy Production

According to the U.S. Governmental Energy Information Administration, coal-fired power plants account for about one-half of the Virginia's electricity generation and nuclear power plants account for another approximately one-third. Natural gas and petroleum-fired power plants account for most of the rest. According to the International Energy Association, 37% of the world's man-made carbon dioxide emissions result from electricity generation. Carbon dioxide is the primary gas in greenhouse gases, which contribute to the greenhouse effect and related climate change. Coal-fired power plants produce more carbon dioxide than any other method of generating electricity and are one of the largest contributors to emissions of smog-producing air pollutants. Further, the International Energy Agency reports that coal-fired plants are the least efficient of the methods for producing electricity.

A significant portion of the electricity used in Leesburg is produced from inefficient, high-polluting coal fired power plants. The proposed combined cycle natural gas power plant will

provide electricity at nearly twice the efficiency of coal powered plants while producing less than one-half of the carbon dioxide, and much smaller fractions of other greenhouse gases (NO_x and SO_2). While solar and wind energy production are even cleaner and more sustainable ways to produce electricity (they do not deplete non-renewable resources such as oil, gas, and coal), the proposed natural-gas facility is as clean and efficient as is available from fossil fuel based power plants. Considering the strategic location of the site along major gas and electric transmission lines, it makes sense to develop a combined cycle natural gas power plant here. Moreover, on a regional scale there will be environmental and natural resource benefits of the area reducing its dependence on electricity produced by coal burning power plants.

Air Resources Impacts

Air resource impacts will be monitored and regulated by the Commonwealth of Virginia. I recommend that the applicant provide information on how the facility will be designed to minimize impacts to air resources through the use of advanced emissions controls such as a Selective Catalytic Reduction System to reduce nitrogen oxides and catalysts to remove carbon monoxide.

Water Resources Impacts

The combined cycle facility will use up to five million gallons of water per day which the applicant is requesting Leesburg supply from the Town's Wastewater Pollution Control facility. According to the U.S. EPA, when pollutants and heat build up in the water used in combined cycle systems, the water is often discharged into lakes or streams. This discharge usually requires a permit and is monitored.

My primary concern related to water resources is how water will be treated prior to discharge into the local streams (Sycolin Creek, Goose Creek, and the Potomac River). The proposed power plant should not be permitted to degrade water quality in area streams through thermal or other pollution. Loudoun County may want to consider a condition of Special Exception approval related to requiring discharge treatment and monitoring to protect local streams.

A secondary concern is for potential impacts to aquatic wildlife during drought times due to reduction of in-stream flows in the Potomac River as a result of diversion of five million gallons of water per day. Currently, those five million gallons of treated water from the Town's facility are discharged to the Potomac.

Noise Impacts

The applicant should provide information of measures to be used to control noise.

Light Impacts

The applicant should provide information on the height of all the components of the facility and what lighting is proposed. All outdoor lighting should be dark sky compliant to minimize light pollution.

Natural Habitat and Endangered/threatened Species

The site has significant natural habitat that plays a role in the region's ecology. The application included a natural resource assessment showing presence of rare species of plants and animals (for example, American Ginseng and the Wood turtle). Design of the site should include retention of an integrated network of key habitat areas.

SUMMARY: The proposed power plant facility has the potential to reduce impacts on the regional and global environment. The applicant needs to provide additional detail and commitments on how they will minimize and mitigate noise and lighting pollution as well as impacts to local water, air, and other natural resources.

James P. "Irish" Grandfield, AICP

Cc: Susan Berry Hill, Director P&Z

ATTACHMENT 4

STATEMENT OF JUSTIFICATION
HYBRID ENERGY PARK
STONEWALL SECURE BUSINESS PARK
Special Exception and Commission Permit Applications
SPEX 2009-0009& CMPT 2009-0001
February 27, 2009
Revised March 25, 2009

I. INTRODUCTION

Green Energy Partners/Stonewall LLC, the Applicant is proposing a special exception and a commission permit for the development of a utility generating plant and transmission facility on approximately 87 acres in the Planned Development – General Industrial zoning district "PD-GI" portion of the proposed Stonewall Secure Business Park (ZMAP 2008-0017). The parcels that are subject to the proposed special exception and commission permit applications include Loudoun County Tax Map 60, Parcels 38 and 38A (MCPI 193-38-4362 and 193-49-0539) owned by Evergreen Loudoun – One Limited Partnership; Loudoun County Tax Map 60, Parcel 41 (MCPI 193-27-9018) owned by Sycolin Corner, LLC; Loudoun County Tax Map 61, Parcel 12 (MCPI 193-39-3665) owned by John A. Andrews, Trustee; Loudoun County Tax Map 60, Parcel 39 (MCPI 194-48-6020) and Loudoun County Tax Map 61, parcels 13 and 14 (MCPI 194-49-8227 and 193-29-6778) owned by LTI Limited Partnership, collectively the "Subject Property".

The Subject Property is located on the north and east sides of the Route 267 (Dulles Greenway) east of Route 643 (Sycolin Road), south of Route 653 (Cochran Mill Road) and west of Gant Lane (Route 652) in the Catoctin Election District of Loudoun County, Virginia. Sycolin Creek borders the Subject Property to the north and the property to the north of Sycolin Creek is zoned JLMA – 20 and contains scattered residential uses along Cochran Mill Road and vacant land. Property to the north east is owned by Luck Stone Corporation and zoned TR-10 and property to the southeast is zoned TR-10 and is predominantly vacant. There a few homes on the west side of the Subject Property and these properties are also zoned TR-10. Traversing the Subject Property are three 230KV Dominion Virginia transmission circuits on two separate 130 foot (approximately) aerial structures, major electrical power transmission lines within a 250 foot wide easement. Two interstate natural gas transmission lines within a 30 foot wide easement transverse the Subject Property in a north/south direction along side of the electrical transmission lines. These interstate natural gas lines are unique in that these lines originate in two separate areas of the United States, which is particularly advantageous in natural disasters such as hurricanes when one of the lines may be disabled. One of the lines originates in the Ohio Valley and the other from the Gulf Coast. This is the primary reason that other fuels will not be required as a back up source. The Subject Property contains a mixture of open fields and a combination of evergreen and deciduous forested areas. An abandoned house and barn, along with two farm ponds are located upon the Subject Property.

II. BACKGROUND

The State of Virginia is projected to face up to a 4,000 mega watt power shortage over the next ten years and approximately 65 percent or 2,800 mega watts of the shortage will be in the Northern Virginia region. The Northern Virginia region energy production is limited with transmission constraints. Severe congestion in the Northern Virginia regional power grid inhibits the orderly distribution of power in the region which may cause rolling blackouts and power outages in the near future. Electric power is distributed within Virginia by an electric power transmission system. The transmission system consists of high-voltage, high-capacity transmission components, including 765kv transmission lines in the western Virginia service area of American Electric Power and 500kv transmission lines in other parts of the state.[1] The power lines traversing the site are 230kv. Northern Virginia and Loudoun County are leaders in the high technology industry and are facing escalating reliability problems with electrical power generation and transmission which has resulted in high prices, threats of rolling blackouts, appeals for voluntary curtailment by consumers and the proposal of numerous transmission lines throughout Loudoun County. Resolving electricity reliability problems in a crisis atmosphere undermines customer confidence and is almost always unnecessarily expensive. Electricity is an integral part life and electric system reliability is indispensable to support residential, commercial, industrial and governmental functions. Lack of reliable electricity is not just an inconvenience but it creates an economic loss. Loudoun County has become one of the prime locations for internet related companies. These internet related companies include numerous data centers that create high value tax revenues with few employees. With Loudoun County's foresight the issue of electrical self sufficiency and security in the future would allow for the continuation of the expansion of these high value tax paying companies to locate within Loudoun County.

Over 90% of the electrical energy generated by utilities in Virginia is produced from coal and nuclear sources. Bulk power is moved through the State on large transmission lines. A network of smaller, lower voltage lines distributes the power from the larger power lines and individual generating facilities to consumers in urban and rural areas.[2] Production and combustion of coal results in the largest environmental impacts of all of the fossil fuels. Technology for capturing and sequestering carbon dioxide is expensive and unproven. Natural gas has 27 percent less carbon content of coal and 20 percent less than petroleum. Natural gas has an additional advantage over coal when used in highly efficient combined cycle gas turbines[3]. The proposed Stonewall Hybrid Energy Park will provide the means to produce Green Energy of electric power in a clean and efficient manner.

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[1] 2009 Virginia Center for Coal and Energy Research website: www.energy.vt.edu/vept. Virginia Energy Patterns and Trends, Virginia Electric Energy
[2] Ibid.
[3] Virginia Chapter Sierra Club, "The Citizens Energy Plan for Virginia", 2007.

During congressional testimony, James Hansen, a noted climatologist and Director of NASA's Goddard Institute for Space Studies, told lawmakers that "phasing out the use of coal except where carbon is captured . . . is the primary requirement for solving global warming". Carbon capture technology will not be available for another 10 to 15 years[4] The Environmental Protection Agency data on individual coal-fired generating units found that in 2020, 68 percent of the 1,041 total coal-fired, electric-generating units in the eastern half of the U.S. will still lack scrubbers or advanced nitrogen oxides controls[5]

Virginia's electrical network is an integral component of the regional transmission system, which serves a number of important functions. In-state electric-power generation it is far from sufficient to satisfy the State's consumption. On average only 80 percent of the electrical energy used by Virginia consumers is generated in-state. Approximately 20 percent is imported from out-of-state generators on power transmission lines to supply Virginia residents and businesses[6]. Electricity loses power in distribution of electricity by line resistance in transporting it from other areas.

The Applicant is proposing to build a primary and peak demand facility including up to a 600 megawatt combined cycle gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking power natural gas turbines and a 1 megawatt solar array. The solar array, combined cycle and peak generating turbines will provide a dedicated reliable source of power for the electrical grid. Additionally, uses within the Stonewall Secure Energy Park will be provided with redundant, efficient and reliable source of energy necessary for high tech and data center reliability. The Hybrid Energy facility will utilize up to 5 million gallons per day of waste water effluent for cooling water in the plant. This unique process could eliminate two billion gallons of effluent per year that is currently being discharged directly into the Potomac River that feeds into the Chesapeake Bay from the Leesburg Sewage Treatment Plant. This process will be the first one of its type in the Potomac River and will be a prime example of being able to show local governments ability to clean up the Chesapeake Bay. The Applicant is having discussions with the Town of Leesburg to use the waste water from the Leesburg Sewage Treatment plant.

There is a proposal for constructing a controversial $1.8 billion overland power line to import power from several coal powered plants outside of the region due to the lack of facilities in this area. Green Energy Partners/Stonewall LLC has the viable solution for the long term health and long term security and prosperity of our region. Green Energy Partners/Stonewall LLC has the best location, the cleanest most efficient and proven modern technology for producing Green Energy clean power, and a process that produces clean energy utilizing natural gas, steam, solar and potentially the waste water from the Leesburg Sewage Treatment plant , contributing to the clean up of our vital water ways and the Chesapeake Bay.

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[4] Northern Virginia Magazine. "Plant Life" by Travis Hicks, January 2009.
[5] NPR.org. "U.S. Power Plants Slow to Clean Up Their Act" by Elizabeth Shogren, August 20, 2006.
[6] Ibid.

According to studies by the RW Beck Company, a hybrid energy facility at the proposed location will relieve congestion of the regional power grid and will meet the future demand for power in the region. Due to the fact that this proposed plant is considered 'Green' and is within the Power Service Area ("PSA") a regional power supplier, may qualify for credits that would enable the closure of a coal plant within the PSA.

Stonewall Secure Business Park has the necessary existing resources for an energy park with two interstate natural gas transmission lines traversing the property and three 230KV Dominion Virginia transmission circuits on two separate aerial structure lines. These transmission lines serve Virginia from the eastern seaboard from South Carolina to Maine. By utilizing two separate gas supply lines and having direct access to the interstate and regional power grid, the proposed Hybrid Energy Park will make a major contribution to national and regional security and make Loudoun County energy self sufficient while making a substantial contribution to the cleanup of the Chesapeake Bay.

Power plants are generally long-lived investments; the majority of the existing capacity is 30 or more years old. Because of the expected near-term retirement of many aging plants in the existing fleet, growth of the information economy, economic growth, and the forecasted growth in electricity demand, America faces a significant need for new electric power generation. North America's world-class electric system is facing several serious challenges. Major questions exist about its ability to continue providing citizens and businesses with relatively clean, reliable, and affordable energy services. The recent downturn in the economy masks areas of grid congestion in numerous locations across America. These bottlenecks could interfere with regional economic development. The "information economy" requires a reliable, secure, and affordable electric system to grow and prosper. Unless substantial amounts of capital are invested over the next several decades in new generation, transmission, and distribution facilities, service quality will degrade and costs will go up[7].

Energy prices are on the rise, Northern Virginia Electric Cooperative ("NOVEC") has increased in power cost from 2002 to 2008 of 62 percent and Dominion Virginia Power has received approval and has implemented an increase of 18 percent in 2008. The costs are associated with the availability of power and cost of fuel for the production of electricity.

III. PROPOSAL

The Applicant is proposing a utility generating plant and transmission facility use by special exception in the PD-GI portion of the Stonewall Secure Business Park pursuant to Sections 4-604(I) and 4-607(H) of the Zoning Ordinance. More specifically, the Applicant is proposing to build a primary and peak demand facility including up to 600 megawatt combined cycle natural gas turbine-waste water energy plant, up to two 150 megawatt simple cycle peaking

[7] US Department of Energy Office of Electrical Delivery and Energy Reliability, GridWorks. "Overview of the Electric Grid" http://www.energistics.com/gridworks.grid.html

power gas turbines and a 1 megawatt solar array. The Hybrid Energy Park will utilize up to 5 million gallons per day of waste water effluent for cooling water. By turning the water into steam this will eliminate two billion gallons of effluent per year from being discharged into the Chesapeake Bay.

The primary waste water energy facility will incorporate two natural gas turbines with closed heat recovery steam generators ("HRSG") to produce the heat to supply the steam injected turbines. This is called a combined cycle facility that captures 60 percent of the energy from the natural gas used to power the turbines. Coal fired energy plants have a less than 35 percent efficiency use of fuel energy. The waste water effluent is used in the cooling condenser which turns the turbine exhaust steam back into distilled water that may be recycled back through the HRSG. Excess steam and cooling produced by the plant is proposed to be used to heat and cool several million square feet of data centers and other buildings within Stonewall Secure Business Park. The use of the excess steam and cooling to heat and cool buildings is being utilized throughout Europe. Combined heat and power ("CHP") plants capture heat and use it to provide space and water heating to local buildings. This type of system with the added benefit of cold water production from the facility could provide the ability to initiate power reduction requirements in future data centers. The capital cost of the facility is estimated over $800,000,000 and will provide an economic engine for Loudoun County, in construction, tax revenues and in reliable source of Green energy. Real estate tax revenues for Loudoun County for the proposed Hybrid Energy Park at build out are estimated to be in excess of $10,000,000.00 per year.

The property that is adjacent to the western boundary of the Subject Property is owned by the Luck Stone Corporation and Wildwood Farms, which is under contract for purchase by Luck Stone Corporation. The Issues for Consideration for special exception applications contained in Section 6-1310 of the Zoning Ordinance are addressed in the Attachment.

IV. COMPREHENSIVE PLAN AND COMMISSION PERMIT

The Subject Property is located within the Transition Policy Area and the Lower Sycolin Creek and Middle Goose Subarea as specified in the Loudoun County's Revised General Plan (RGP). The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide some *unique development opportunities* (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The proposed Stonewall Secure Business Park is a unique development that will provide a compatible transition from suburban to rural land uses while protecting the Luck Stone Quarry from residential development.

Development of the Hybrid Energy Park supports the RGP General Policies, as follows:

Policy 1: protect drinking water resources of Lower Sycolin subarea. The Hybrid Energy plant may utilize up to five million gallons of treated effluent per day produced by the Leesburg

Waste Water Treatment plant which will eliminate two billion gallons of effluent per year from being discharged into the Potomac River and the Chesapeake Bay. The cooling water will be turned into steam and proposed to be used to heat and cool the data centers and buildings in Stonewall Secure Business Park.

Policy 7: protect the extractive industry of Luck Stone quarries. The Hybrid Energy Park which is proposed in the northern eastern portion of the Subject Property is proposed as PD-GI which is compatible with the Luck Stone quarry. The Hybrid Energy Park is complimentary and compatible with the operations of a quarry and will protect the quarry from residential encroachment.

Lower Sycolin and Middle Goose Subareas

Luck Stone Quarry will be protected from encroaching residential development with the Stonewall Secure Business Park. Also, the creation of a buffer and voluntary open space are consistent with the River Stream Corridor Overlay District (RSCOD) policies which is a priority in this Subarea.

Community Design Policies

Policy 15: encourage the development of non-residential uses that provide a transition from suburban to rural. The proposed Stonewall Secure Business Park and the Hybrid Energy Park provides a transition from suburban to rural areas.

Policy 26: protect the Luck Stone Quarry in the Lower Sycolin Subarea from incompatible uses by ensuring that encroaching new development does not hinder the quarry operation. Stonewall Secure Business Park and the Hybrid Energy Park will be compatible to the Luck Stone Quarry and will not hinder the quarry operations.

Economic Development Policies

Policy 1: Loudoun seeks and promotes a diverse economic base in multitude of industries that it is not entirely dependent upon any single employer or employment sector. Stonewall Secure Business Park and the Hybrid Energy Park will diversify the economic base in Loudoun County that and it is not dependent upon a single employer or employment sector. The Hybrid Energy Park will provide Loudoun County with tax revenues and provide Green energy to help attract and support the industry cluster of high security governmental and business uses in Loudoun County.

Policy 4: The County recognizes that economic policy and land use policy must be coordinated. The County seeks to implement the economic goals as adopted and subsequently amended by the Board of Supervisors in Loudoun County's Economic Development Plan and Growth Strategy within the framework provided by the Comprehensive Plan. The proposed land uses combined with the positive economic impacts of Stonewall Secure Business Park and the

Hybrid Energy Park further the goals and policies of the RGP. The Hybrid Energy Park will provide Green energy for Loudoun County and northern Virginia, and keep costs more reasonable than importing electricity from other areas of the region. The capital cost of the facility is estimated over $800,000,000 and will provide an economic engine for Loudoun County, in construction, tax revenues and in reliable source of Green energy. Real estate tax revenues for Loudoun County for the proposed Hybrid Energy Park are estimated to be in excess of $10,000,000.00 per year.

Energy and Communications Policies

Policy 4: Electric generation facilities that use clean burning and environmentally sound and proven fuel sources for power generation can be located only where their impact on the surrounding land uses and the environment is compatible. The proposed Hybrid Energy Park is compatible with the surrounding land uses and environment. It will use efficient and proven modern technology for producing clean power. The production of power produces clean energy utilizing natural gas from the existing lines and potentially the waste water from the Leesburg Sewage Treatment plant will contribute to the clean up the Potomac River and the Chesapeake Bay.

Air Quality Policies

Policy 4: The County will comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan. The proposed Hybrid Energy Park will be required to comply with the requirements of the Federal Clean Air Act Amendments of 1990. Natural gas has 63 percent of the carbon content of coal and 80 percent of petroleum; natural gas has an additional advantage of fuel to electricity efficiency over coal when used in highly efficient combined cycle gas turbines as proposed in the Hybrid Energy Park. Additional benefits for air quality are that the natural gas will not be transported by tanker trucks that would create more pollution. The Hybrid Energy Park will provide the means to produce electricity in a Green and clean efficient manner and the ability to reduce or eliminate high carbon emitters as quickly as possible.

Policy 5: Loudoun County acknowledges its location in the Washington, DC-MD-VA Non-attainment Area. The County will continue to play an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB) and will do its part in the implementation of the Phase II Attainment Plan for the Washington Metropolitan Nonattainment Area, as well as future emissions reduction programs. Due to the fact that the proposed Hybrid Energy Park is considered 'Green' and is within the Power Service Area ("PSA") a regional power supplier, may qualify for credits that would enable the closure of a similar size coal plant within the PSA.

The proposed Hybrid Energy Park as demonstrated above is in substantial accord with the Comprehensive Plan, as required by Section 6-1100 of the Zoning Ordinance.

V. TRANSPORTATION

Access to the Stonewall Secure Business Park will be from Sycolin Road at two locations with guard houses and secured access. All of the roads within the Business Park will be private and will be privately maintained due to the secure nature of the Park. For enhanced security the Hybrid Energy Park will only be accessed within the Stonewall Secure Business Park. The traffic study report titled "Stonewall Secure Business Park Traffic Impact Study Loudoun County, Virginia", prepared by Wells + Associates, Inc. and dated November 5, 2008, was submitted with ZMAP 2008-0017. The conclusions in this traffic study state that Stonewall Secure Business Park will be developed in three separate phases in order to minimize the development's impact on the surrounding road network. For specific information, please refer to the Study. A traffic memorandum is enclosed with the applications, which specifically addresses the trip generation associated with the Hybrid Energy Park. This traffic memorandum was prepared by PHR+A from John Callow and dated February 25, 2009.

VI. SUMMARY

Approval of the proposed special exception and commission permit applications are the first steps in a long process for approval of the Hybrid Energy Park which requires additional Federal and State agencies approval.

Electricity will be generated by the most efficient and state of the art technology which will supply northern Virginia with power and address the shortage and congestion in the PSA. The Stonewall Hybrid Energy Park may reduce the need for additional overhead power transmission lines in Loudoun County that are importing power from outside of Virginia.

The proposed Hybrid Energy Park is consistent with the Comprehensive Plan. The Subject Property is located within the Transition Policy Area and the Lower Sycolin Creek and Middle Goose Subarea as specified in the Loudoun County's Revised General Plan (RGP). The Transition Policy Area serves as a visual and spatial transition between the Suburban and Rural Policy Areas and envisioned that it will provide unique development opportunities (emphasis added). The non-residential component of the Transition Policy Area will be comprised of compatible uses that represent an appropriate transition from suburban to rural land uses. The Luck Stone quarry which borders the Subject Property to the east will be protected from residential development by the Stonewall Secure Business Park. The proposed Stonewall Secure Business Park will fulfill the needs for a Federal Government Contracting Industry Cluster and provide Loudoun County with a significant increase in tax revenues while providing a location for uses that require high security.

For the reasons stated above, the Applicant respectfully requests a recommendation of approval from Staff and the Planning Commission and approval by the Board of Supervisors of the Hybrid Energy Park in the proposed Stonewall Secure Business Park.

ATTACHMENT

STATEMENT OF JUSTIFICATION
HYBRID ENERGY PARK
STONEWALL SECURE BUSINESS PARK
Special Exception Application
Issues for Consideration

Section 6-1310 Issues of Consideration of the Revised 1993 Loudoun County Zoning Ordinance states: "In considering a special exception application, the following factors shall be given reasonable consideration."

(A) Whether the proposed special exception is consistent with the Comprehensive Plan.
The proposed Hybrid Energy Park and the Stonewall Secure Business Park provides an appropriate transition from suburban to rural land uses. The Hybrid Energy Park will provide a compatible transition from suburban to rural land uses while protecting the Luck Stone Quarry from residential development.

(B) Whether the proposed special exception will adequately provide for safety from fire hazards and have effective measures of fire control.
The proposed special exception use will adequately provide for safety from fire hazards.

(C) Whether the level and impact of any noise emanating from the site, including that generated by the proposed use, negatively impacts the uses in the immediate area.
Noise emanating from the Hybrid Energy Park will not negatively impact the uses in the immediate area.

(D) Whether the glare or light that may be generated by the proposed use negatively impacts uses in the immediate area.
It is not anticipated that glare or light generated by the proposed use will negatively impact the uses in the immediate area.

(E) Whether the proposed use is compatible with other existing or proposed uses in the neighborhood, and adjacent parcels.
The proposed use is compatible and will provide electrical power for the existing and future uses within Stonewall Secure Business Park as well as the Northern Virginia region.

(F) Whether sufficient existing or proposed landscaping, screening and buffering on the site and in the neighborhood to adequately screen surrounding uses.
The perimeter buffer will provide screening and buffering from the surrounding uses .

(G) Whether the proposed special exception will result in the preservation of any topographic or physical, natural, scenic, archaeological or historic feature of significant importance.
A 50 foot tree preservation area will preserve existing trees around the perimeter of the Stonewall Secure Business Park.

(H) Whether the proposed special exception will damage existing animal habitat, vegetation, water quality (including groundwater) or air quality.
The proposed special exception uses will have a minimal impact on the air quality and water quality will be improved.

(I) Whether the proposed special exception at the specified location will contribute to or promote the welfare or convenience of the public.
The proposed special exception use will support the uses within Stonewall Secure Business Park and will provide electricity to the power grid to prevent future brown outs which promotes convenience of the public.

(J) Whether the traffic expected to be generated by the proposed use will be adequately and safely served by roads, pedestrian connections and other transportation services.
The proposed Hybrid Energy Park will not generate many vehicular trips and these trips will be adequately and safely by the roadways internal to Stonewall Secure Business Park and the surrounding road networks.

(K) Whether, in the case of existing structures proposed to be converted to uses requiring a special exception, the structures meet all code requirements of Loudoun County.
Existing structures are not proposed to be converted to uses requiring a special exception or primary uses.

(L) Whether the proposed special exception will be served adequately by essential public facilities and services.
The proposed special exception use will be served adequately by public facilities and services.

(M) The effect of the proposed special exception on groundwater supply.
The proposed special exception use will not have an effect on groundwater supply.

(N) Whether the proposed use will affect the structural capacity of the soils.
The proposed use will not affect the structural capacity of the soils.

(O) Whether the proposed use will negatively impact orderly and safe road development and transportation.
Road improvements will be made to safely accommodate the traffic that will be generated by the uses in the Stonewall Secure Business Park.

(P) Whether the proposed special exception use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.
The tax base will be enlarged and approximately 25 jobs will be created with the development of the Hybrid Energy Park.

(Q) Whether the proposed special exception considers the needs of agriculture, industry, and businesses in future growth.
The proposed Hybrid Energy Park will generate electricity for the future uses within Stonewall Secure Business Park and the Northern Virginia region.

(R) Whether adequate on and off-site infrastructure is available.
Adequate on and off-site infrastructure is available or will be improved to serve the Stonewall Secure Business Park and the Hybrid Energy Park.

(S) Any anticipated odors which may be generated by the uses on site, and which may negatively impact adjacent uses.
No odors are anticipated with the proposed special exception uses on the Subject Property that will negatively impact the adjacent uses.

(T) Whether the proposed special exception uses sufficient measures to mitigate the impact of construction traffic on existing neighborhoods and school areas.
Sufficient measures to mitigate the impact of the construction traffic on the existing residential uses will be determined during the processing of the special exception application.